

Introduction to CutOut 10

Software Manual

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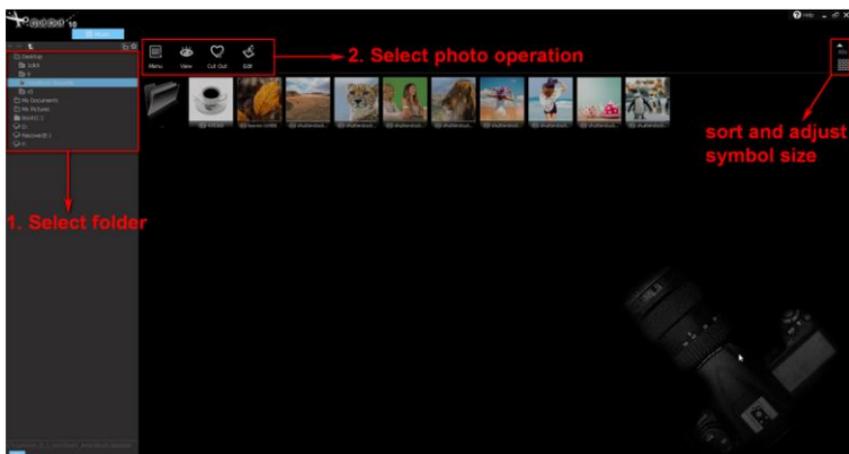
1. New in CutOut 10

CutOut 10 has introduced a couple of new additions to Digital Matting that will

- **IMPROVED: Inside/Outside Edge Matting Layout:** The layout for settings and parameters in CutOut 10 is now divided into **Outside** and **Inside** and **By selections** and **By strokes**. This new feature improves the clarity and accessibility of the tools and reduces the editing time considerably. (See chapter 3.1)
- **IMPROVED: Magnet tool:** A tool in the editing mode which can select a simple object in an instant without needing to switch to matting mode. The tool is suitable for objects with clear borders and simple backgrounds. In the new *CutOut 10*, the automatic edge detection has been improved for even more accurate results. (See chapter 7.2.7)
- **IMPROVED: Shall be simple edge:** The process of converting a complex edge into a simple one has been optimized. The result in this version is much sharper and clearer compared to its predecessor *CutOut 10*. (See chapter 4.4)
- **IMPROVED: Improve brightness:** Brightens dark areas of cropped images to reveal unclear edges between the object to be cropped and the background. This matting tool is even more effective in *CutOut 10* and ensures correct cut-outs. (See chapter 4.4)
- **IMPROVED: Accelerated image loading:** Optimized processing and faster loading of very large images without slowing down the software.

2. Album Mode

After opening *CutOut 10*, the album mode will appear. This is where you can manage your photos:



In section 1, select the folder containing the images that you want to cut out or edit. Use the magnifying glass  at the bottom of this area to search your computer for image files.

The menu bar in section 2 gives you one-click access to the most important functions of *CutOut 10*, including the three matting options.

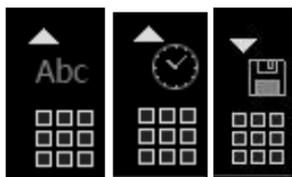


Menu	General functions and settings
View	Opens the picture in full screen format
Matting	Opens the selection window for the three matting options
Edit	Opens edit mode (the post-matting)

You can change the size of the images displayed here by holding down the CTRL key and scrolling the mouse wheel.

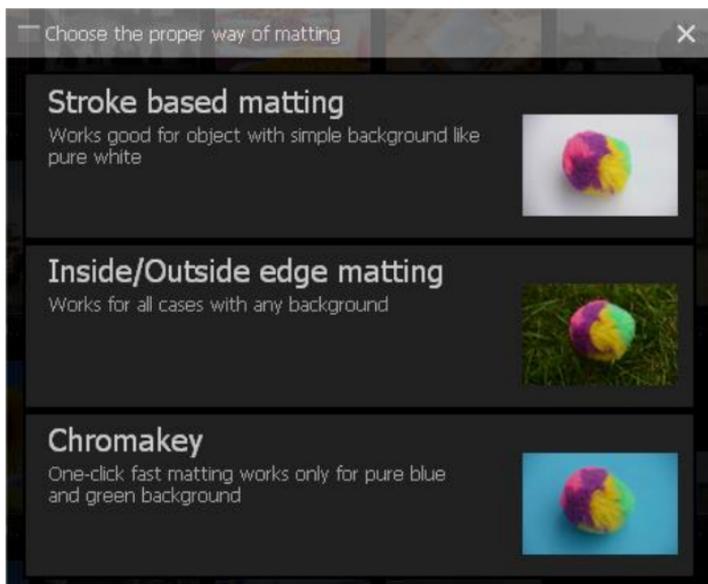
The album view of **CutOut 10** is used to perform general functions such as viewing, sorting, renaming, copying, pasting or adding EXIF information. You can also access these functions by clicking on **Menu**. By right-clicking on the photo, the available functions appear in the context menu.

Using the icons at the top right of the screen, you can sort the images according to various criteria and adjust the icon size:



3. Quick Introduction to Object Cropping

To crop an object and remove it from an image, select the image from the album mode, locate the crop-symbol in the menu above and choose a cropping method.



Which Cropping Method is the best one?

There is no right or wrong answer to this question. Choosing the most suitable cropping method is solely dependent on the image you intend to edit:

1. If you want to cut out an object without a background that can be clearly distinguished in terms of color, select **Inside/Outside Edge Matting**. With this method and the help of the polygon tool, you determine the inner area (the object to be cropped) and then the outer area (the background). Now you can crop the object.
2. If you want to crop an object that does possess an evenly colored background (optimally blue or green) which is clearly discernable

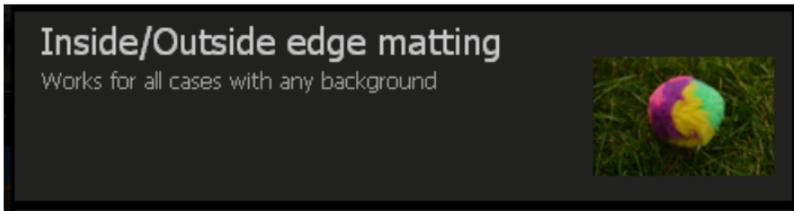
from the object, select the option **Chromakey Matting**. Well suited for this method are portraits with monochromatic backgrounds, e.g. landscape shots with a clear blue sky.

3. The **Stroke Based Matting** can be used in case none of the two previously mentioned methods work or when areas within the cropped object need to be removed quickly and precisely. After choosing this method, the image is divided into small puzzle pieces, so-called segments, which can be assigned easily to the inside or outside areas. Segmented cropping considers brightness, colors and contours and provides a clear-cut result. Using these calculated segments is the best editing method for those wanting to crop objects from images taken in front of evenly colored backgrounds – not necessarily in a photo studio – such as items to be sold on eBay shot on the kitchen table. In most cases, the lighting is too poor for Chromakey Matting to produce the best result. In this case Stroke Based Matting has proven most effective. The effectiveness of this method can especially be seen when cropping an object in front of a white, gray or black background. When working with rather large images containing many segments, the calculation may take a little longer.

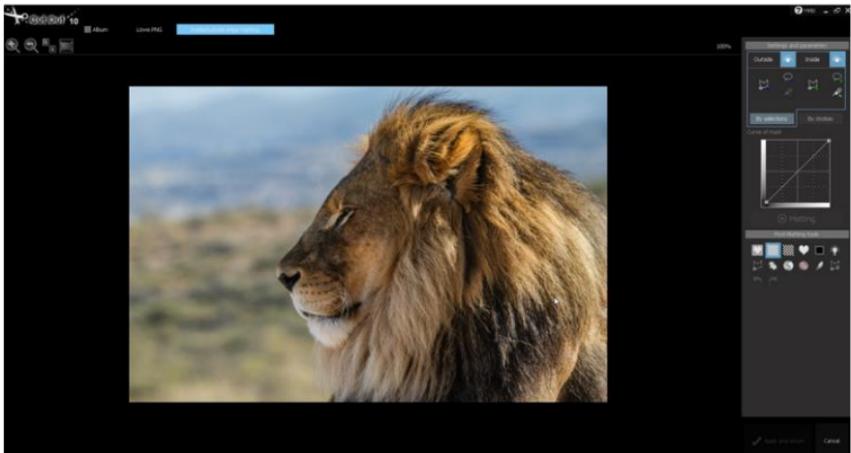
3.1 Inside/Outside Edge Matting

Method for multicolor backgrounds – or when colors from the background are also found in the foreground object.

Inside/Outside Edge Matting is perfect when it comes to cropping objects from images, which **do not possess a strictly monochromatic background** or are similar in color to the background itself. Select the image you wish to crop from the album mode and choose the middle option from the following window.

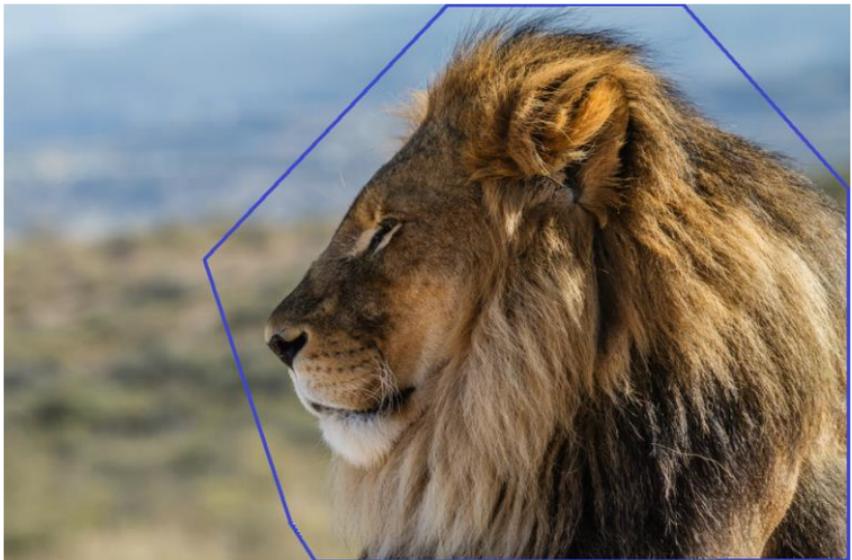
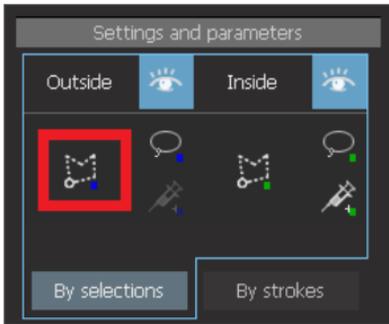


Now the selected image should be opened in the Inside/Outside Edge Matting Menu as follows:



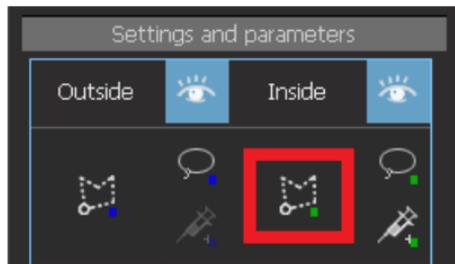
Since the background coloration of the example is quite similar to the lion's fur, Chromakey Matting would most likely not deliver the best possible result. Therefore, one should separate the object to be cut out in the foreground from the background by hand.

To accomplish this, select the polygon tool for the outside selection from the upper left-hand corner. Then draw an outer-edge outline around the lion's head.

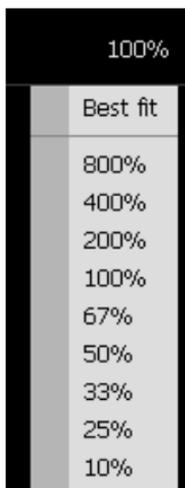


This does not need to be done with pinpoint precision. It is most important to make sure that you do not assign any points from inside the head to the outside when drawing the outline.

Now choose the polygon tool for the inside selection:



Step by step, click and drag the outline along the inside border of the lion, that is, where the edge of his meets the background. Once again, this process does not need to be carried out 100% accurately. In order to be able to work more precisely, you can use the zoom function located on the left side of the menu bar:

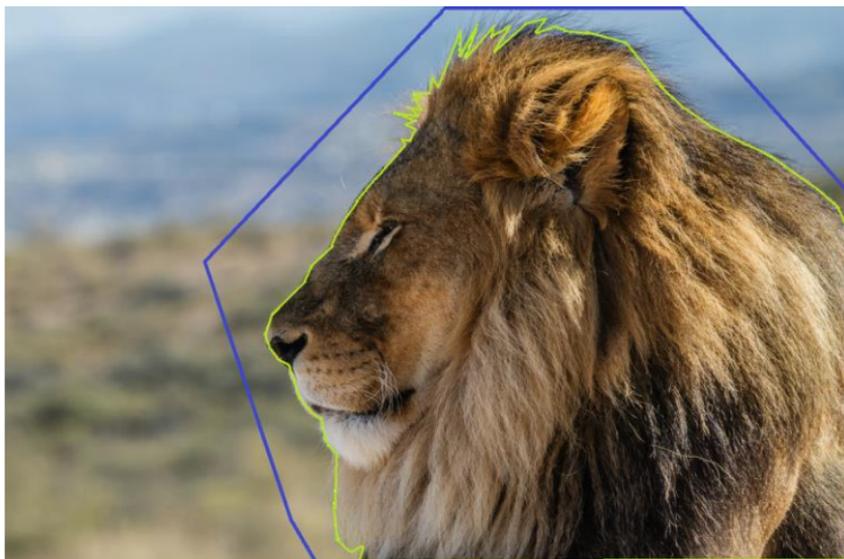


An alternative option is simply scrolling with your mouse wheel to adjust the zoom settings.

How do you take a step back?

If you click on the wrong spot, one right-click with your mouse will undo the last point made with the polygon tool.

Now finish outlining the interior until you have circled the object once from the inside. Once again, it is important that the inside border does not touch the outside border area or the background itself. Complete your selection with a double-click of your mouse.



Now you should see a green inside line and a blue outside line.



With one click of the **Matting** button on the right side of the menu, the object is cropped according to the inside and outside edge selections made in the previous step.

If you have checked the **Apply selection changes automatically** box above, you can also click directly on **Apply**.

Apply selection changes automatically

The result looks quite promising at first glance. The background has been removed and now appears transparent (gray/white grid-pattern):



If you are not yet satisfied with the result, you can improve the cropped object by using a number of additional tools located in the *Inside/Outside Edge Matting* menu. These will be described in further detail beginning in *Chapter 3 Editing Cropping Results*.

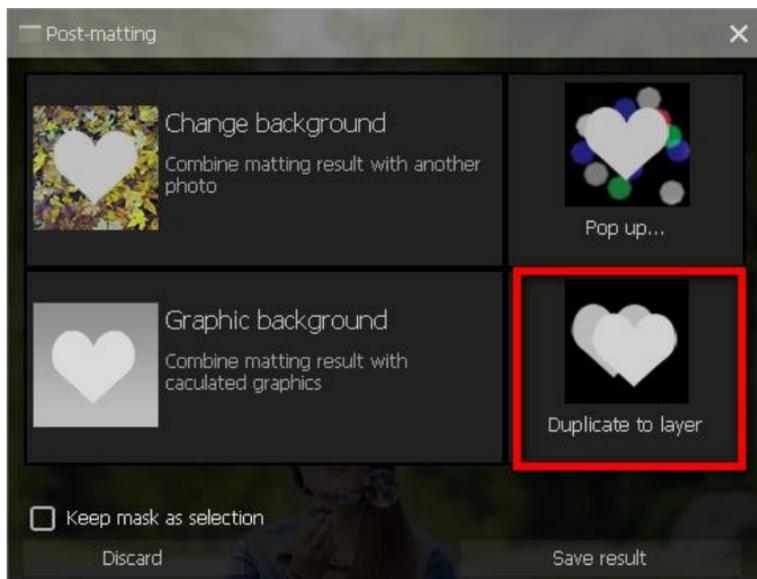
To create the displayed matting result as a separate layer in **CutOut 10** and then edit or save it, click **Apply** in the *Inside/Outside Matting* menu.



Apply and return

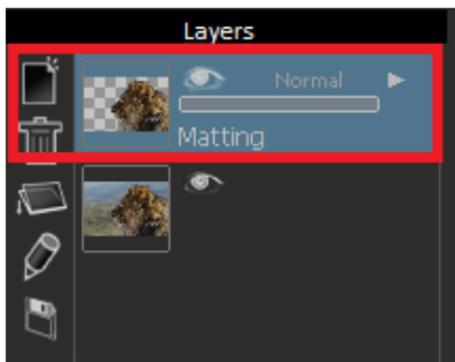
Cancel

Following this, the post-matting menu will appear with an array of options on how you can proceed with the cropped object. To have your cropped object remain as its own layer, select the option **Duplicate Layer**. Further explanations regarding the remaining menu options can be found in chapter 6 titled *The Post-Matting Menu*.



Alternatively, you can also insert a new background. To do this, go to **Change background**.

The matting result can now be found in the drop-down tab on the right side labeled **Layers**. To be able to see your efforts and view the matting result, you have to first hide the original picture containing the background. This can be done simply by clicking on the eye symbol located next to the layer:

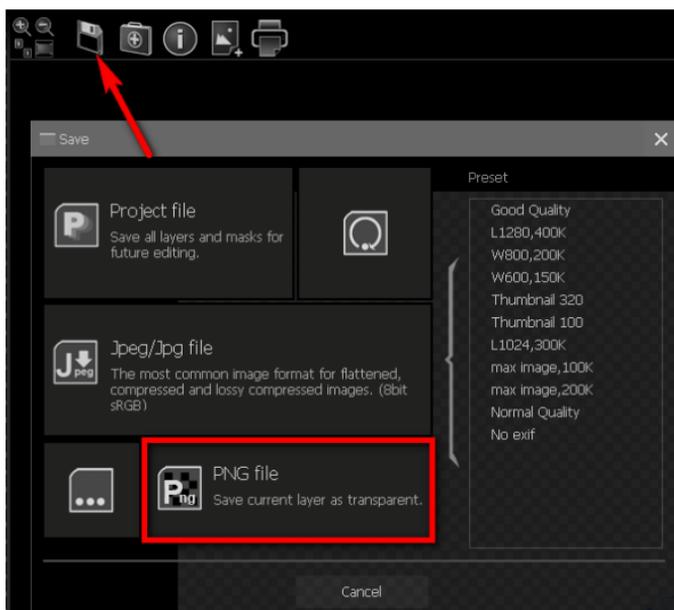


Now you have the option of either saving your work by clicking on the save symbol in the upper region of the image, or you can keep working on the image with the numerous effects and editing possibilities in **CutOut 10**.

Make sure that you have selected the correct layer! In this case you must select the layer with the matting result.

Note that you should select PNG as the storage format to preserve the transparency information of the image.

You have now saved the lion on a transparent background and can use it in other programs as well.



Once again, quickly listed here are the most important steps in the selection of the inside and outside areas:

- Use the polygon tool in the selection of the inside and outside selection.
- Click once to begin the selection.
- One right-click of the mouse removes the previous point.
- Moving and clicking of the mouse continues the selection.
- Double-clicking ends the outline selection
- Use the mouse wheel to zoom in and out.

3.2 Chromakey Matting

Method used for cropping persons or objects from images with monochrome blue or green backgrounds.

In order to crop objects with a monochrome green or blue background in **CutOut 10** using chromakey matting, select the desired image in album mode and click on **Chromakey** in the menu bar. The selected image should now be opened in the Chromakey Matting menu as follows:



On the right side of the screen, you have various matting setting options at your disposal that can be used to optimize the release result.

In order to crop the persons on the picture, i.e. to extract the green background, first click on the pipette symbol:



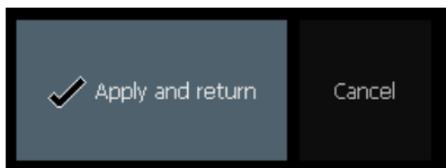
Then click on a spot in the image that corresponds to the background color, in this case the green area. The pipette tool gives **CutOut 10 professional** the information which color corresponds to the background. **CutOut 10 professional** automatically detects which areas need to be extracted from the image and which ones need to be retained.

The result is displayed directly, whereby the distant background is displayed transparently (gray-white grid pattern):

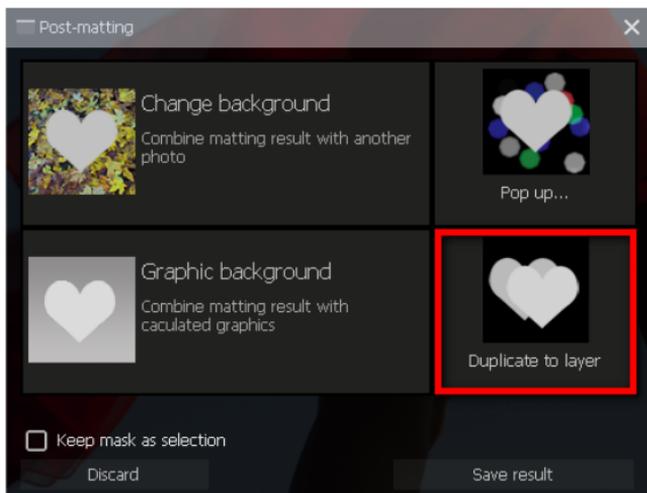


Since the green background in this picture stands out very clearly from the object (the persons), the matting result is already quite optimal and hardly needs any further improvement. However, not every picture possesses such clearly distinguishable background colors, so that the matting result often needs to be improved. In this case, please turn to the chapter 4.2 *Settings & Parameters: Chromakey Matting*, which explains the other tools of the Chromakey Matting menu.

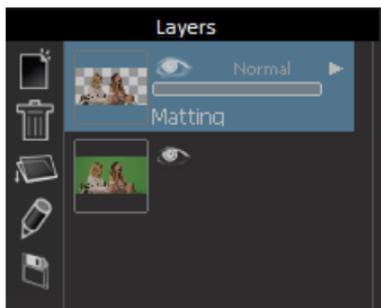
To create the displayed matting result as a separate layer in **CutOut 10** and then edit or save it, click **Apply** in the Chromakey Matting menu.



As a result, the post-matting menu will appear presenting you with an array of options on how you can proceed with the cropped object. To have your cropped object remain as its own layer, please select the option **Duplicate Layer**. Further explanations regarding the remaining menu options can be found in the chapter titled *The Post Matting Menu*.

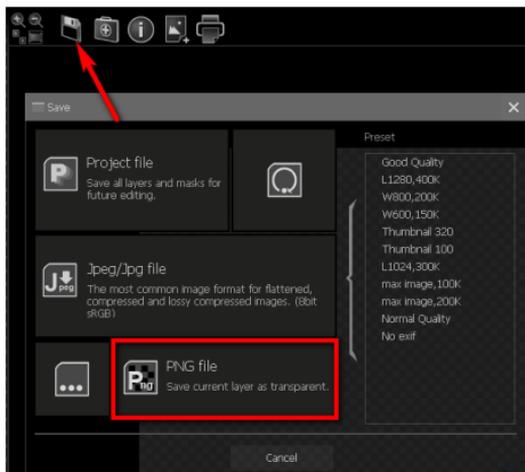


The matting result is now available in the menu bar on the right in the **Layers** area. In order to recognize the matting result, however, you must hide the layer of the original image that still contains the background. You can do this by clicking on the eye symbol next to the layer:



Now you have the option of either saving your work by clicking on the save symbol at the top or you can keep working on the image with the numerous effects and editing possibilities **CutOut 10** has to offer. When proceeding to the editing stage, make sure to select the correct layer, in this case the matting result.

Please keep in mind that your project should be saved in PNG format in order to retain its transparency information.



Note: This chapter should serve as a simple introduction to object cropping using Chromakey Matting. For a more detailed overview of functions found in this menu, please turn to the chapter 4.2.

3.3 Stroke Based Matting

Use this method to crop images that have a white, gray, or black background. This method is also used to cut out areas of an object that are also part of the background.

First Application Example — Cropping Objects on White Surfaces

Select your image from album mode and click the option labelled **Cut Out** in the menu bar.

Choose the proper way of matting

Stroke based matting
Works good for object with simple background like pure white



Inside/Outside edge matting
Works for all cases with any background



ChromaKey
One-click fast matting works only for pure blue and green background



A red arrow points from the top right towards the 'Stroke based matting' section.



Section with the calculated segments

The image has now been segmented into separate sections according to their brightness levels, edges and coloration. Now click on the white background to crop the object.



The object is now perfectly cropped. The selected region is colored green, the background blue. Now click on the **Matting** button to remove the background. Following this, click **Apply** and choose a new background for your object.

Second Application Example: combining Inside/Outside Edge Matting with the segmentation method to remove sections from the inside area without flaws.

Select the image and click the **Cut Out** button.

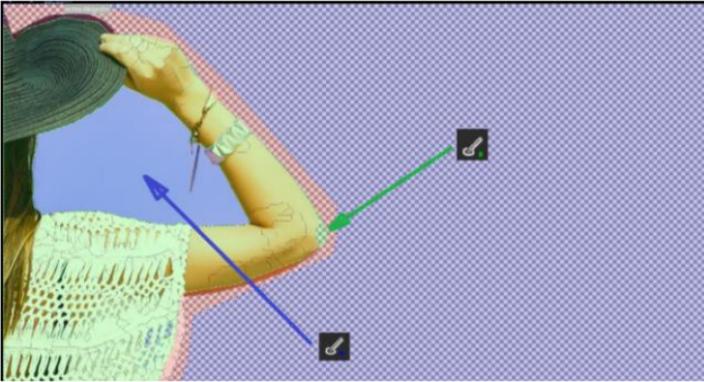
Now choose the **Inside/Outside Matting** method and select the inside and outside edges as usual. The cropped result now looks like this:



The sky between hat and arm still has to be removed. In addition, a small part of the arm was cut away and needs to be brought back.

In Settings and Parameters select **By strokes** and activate it by clicking on the blue pen and once into the image. Now you can select one of the two options for marking the outside segments. After marking the outside segments, select one of the green tools to mark the inside segments.





In order to incorporate the sky region into the outside calculation, simply designate this area with the blue segmentation. The green segment selection should now be used to bring back the part of the elbow missing in the cropped result. Clicking **Execute** followed by **Apply** will finalized your edits.

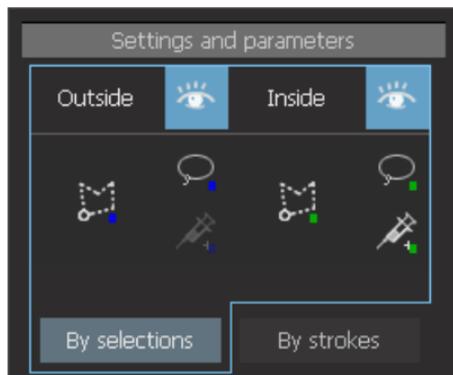
The result speaks for itself!



4. Matting Mode

4.1 Settings & Parameters

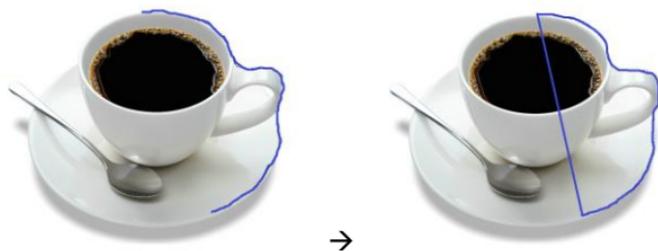
The following settings and parameters are available in the matting mode for cropping using the Stroke Based Matting and Inside/Outside Edge Matting:



Polygon tool: this was already explained in chapter 3.1. Here is a short summary again: start with the polygon tool for the outer selection (blue)  by clicking on your image. Moving and clicking continues the selection. A right click removes the last point, and a double click ends the selection. Then use the polygon tool for the inner selection . With the mouse wheel and the lateral sliders, you can adjust the view.

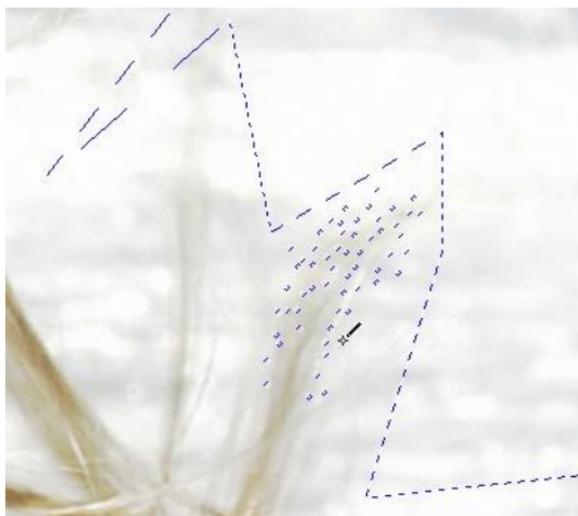
Lasso tool  : The lasso tool works similarly to the polygon tool and is used to freely select the background or foreground. You start the selection by clicking. Keep the mouse button pressed and border the desired area. When you release the mouse button the selection is automatically completed. With the mouse wheel and the lateral sliders, you can adjust the view.

In the next example, the mouse button was released before the object was circled. The tool automatically completed the selection with the shortest distance between the start and end point:



Inject tool  : You can add individual pixels to the inner or outer selection using the inject tool.

For example, select the inject tool for the outer selection (blue) after you have defined the inner and outer selection. Then click on individual pixels in the image that you do not think belong to the foreground object. In our example image, we will try to remove the white streaks around the hair strands:



Since a pixel is selected with each click, you can work very precisely. When you have finished your selection, click **Apply** again to get an updated matting result.

 Apply

The result in this case is the following:



Before inject tool

After inject tool

Here, the white veil around the worked hair strand has been thinned. The more pixels you set, the stronger the result will be. The inject tool for the inner selection works in the same way as the inject tool for the outer selection: click pixel by pixel on the areas of the image to be assigned to the inner selection and then click **Apply** again to see the result.

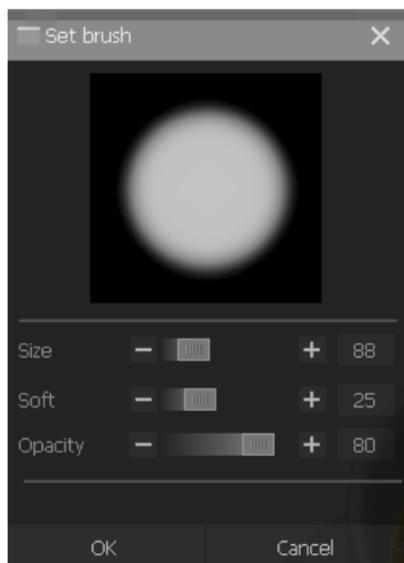
Note: Since the changes made by the inject tool are small details, you have to zoom in close enough to see the differences. This is the only way to perform an exact analysis.

Segmentation tool: this was already explained in chapter 3.3. Here is a short summary again: After you have defined the inner and outer selection with another tool, you can adjust the outer and inner area via segments. Areas that are not clear whether they belong to the foreground or background are displayed in red. Use the outer selection segmentation tool 

to click the red areas that belong to the background and the inner selection segmentation tool  to click the areas that belong to the foreground.

Brush tool  : You can also use the brush tool to customize the exterior and interior. After using another tool to specify the inner and outer selection, click the outer selection brush tool (blue). By holding down the mouse button and moving the mouse over your image, you can adjust the background. You can use the inner selection brush tool (green) to assign areas to the foreground:

At the upper edge you can set the brush properties:

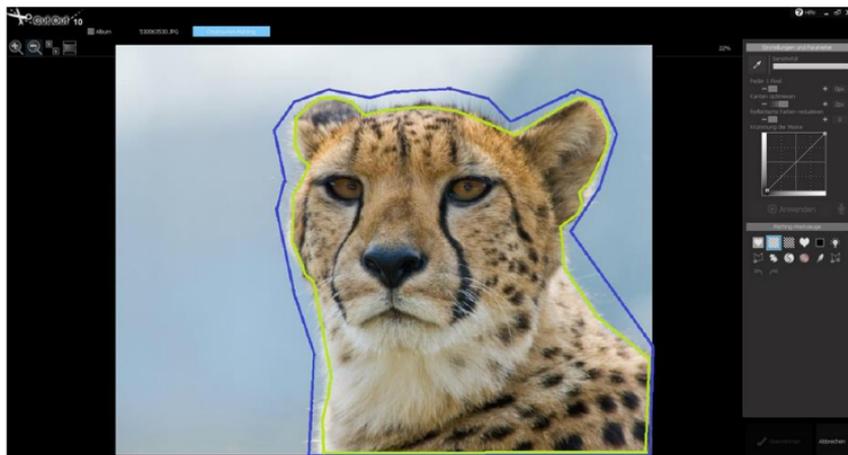


Contour tool: With the help of a contour tool, you can roughly trace the edges of the inside and outside area and **CutOut 10** automatically detects in which area the separation should take place. You can then adjust the separation area.

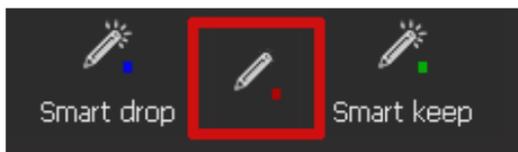


You will find these contour tools among the well-known polygon tools for the inner and outer selection. In contrast to the polygon tool, with the Contour tool you only have to roughly circumscribe the inner and outer area of the object to be cut out and not click exactly, which saves a lot of working time. When you select the contour tool, you can define the brush properties at the top of the screen before you start to draw the contours.

Then you first bypass the outer area of the object with the contour tool for the outer selection (blue), then switch to the contour tool for the inner selection (green) and bypass the inner area. The procedure is the same as for the polygon, brush or lasso tool.

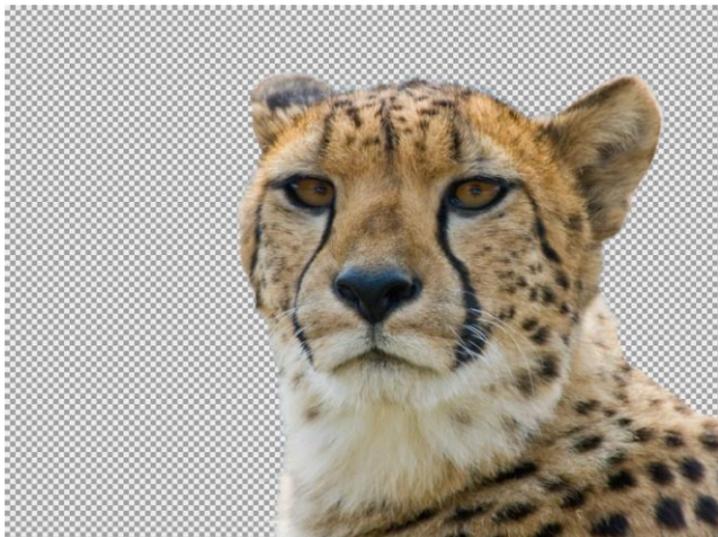


CutOut 10 recognizes by the roughly painted selection which areas belong to the interior and which to the exterior. With the contour tool, which is located between the background and object selection, you can adjust the intermediate area, called the unknown area:



This makes sense in places where it could be difficult to calculate when assigning to indoor or outdoor areas. In this case the hair of the cheetah would be such an area. After moving the contour-unknown tool over the intermediate area, the intermediate area expands from the diameter of the lower red arrow to that of the upper red arrow:

At first glance, the contour tool delivers a professional grade result just like the polygon tool but in considerably less time.



Simply circling the edges with the help of the edge tool is always useful if the object to be cut has particularly clear edges. If this is not the case, the polygon tool may be more suitable.

4.2 Settings & Parameters: Chromakey Matting

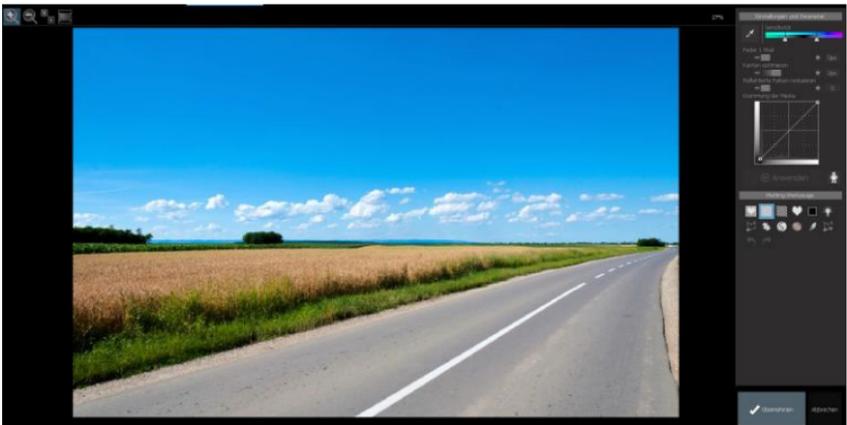
If the Chromakey Matting result has flaws, you can use the following parameters to refine the result.

- **Feather Brush**
Adds individual pixels to the mask and ensures a softer transition from the foreground to the background.
- **Optimize Edge**
Optimizes the mask around the edges of cropped object.
- **Reduce Reflected Color**
Sometimes the background reflects its colors into the foreground, for example when a person wears white clothes and stands in front of a blue background. This can result in the clothing being

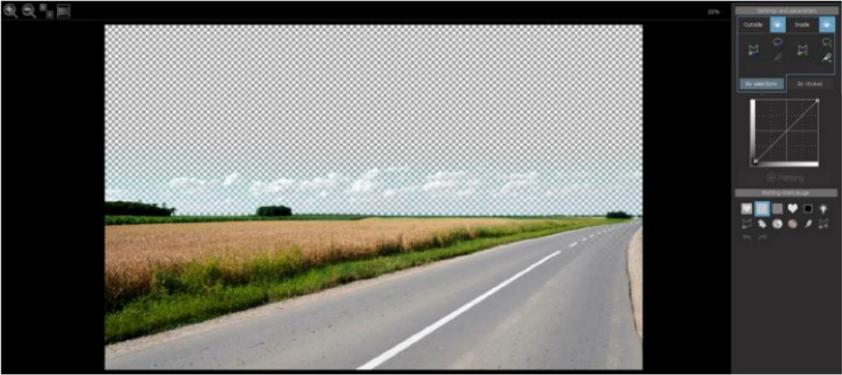
semi-transparent. With this option it is possible to reduce this effect.

But now, let's practice. The following example picture shows a landscape with a blue sky, but crossed by some white-grey clouds, and from which you would like to remove the entire sky including clouds.

The different functions of the Chromakey Matting menu will be gone through step by step with the help of this picture and finally it will be explained how the clouds can be removed:



If you apply Chromakey Matting to this image by clicking on an area of the blue sky with the pipette tool as described in the quick start chapter, the following result will be shown:



The blue areas of the sky were successfully removed, but the clouds were not. These still shine through, because they are not blue, but white-gray.

Sensitivity

In the sensitivity bar, you can increase or decrease the sensitivity of the selected color tone. In the following example, if you move the left slider further to the left, the color range that is displayed transparently expands by the displayed hue range. To remove the clouds from the image, it might be helpful to move the left slider to the left, as even brighter blue tones will then become transparent in the image. Then click **Apply** to see the result.



With closer examination, this procedure seems to have generated slight improvements:



Exclusion of lighter blue tones

Inclusion of lighter blue tones

Very bright blue tones are now transparent. However, the white cloud areas are not. However, the sensitivity adjustments are generally well suited to include or exclude further color ranges of the color selected with the pipette.

Feather Brush

With this slider you can extend the border area of the transparent regions by 1 to 8 pixels. A high value will therefore include an extended area in the border area between foreground and background.



In our example image, this setting has the following effect:



Feather Brush Area Radius at 0 Pixels

at 8 Pixels

This option can therefore be used reliably if the Chromakey tool has skipped a small area that should have been transparent or if a softer transition between foreground and background is desired. In this case an optimization can be achieved by increasing the captured border pixels in the border area.

Optimize Edge

With this function **CutOut 10 professional** optimizes the transition area between foreground and background area within the specified number of pixels.



Applied to our example, improvements are hard to see. The impact is only marginally visible:



Optimize Edge 0

Optimize Edge 5

The edges, i.e. the transitions from field to sky, have been slightly improved and optimized on the right image to create a smoother transition. This effect increases the higher the pixel value is selected in the slider.

Reduce Reflected Colors

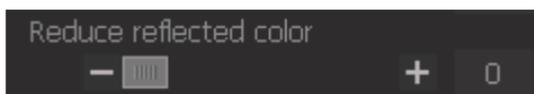
It may happen that the background reflects its color to the foreground. If this is the case with your image, you can limit this effect with the ***Reduce Reflected Colors*** slider. In our example image, a high value causes the already transparent clouds to reappear because the program assumes that they were wrongly considered as background during the matting process. This is not helpful for our plan to remove the clouds. However, it is very helpful for the street area of the image. In the original matting result, small areas of the road were made transparent by mistake. If you now increase the slider ***Reduce Reflected Colors*** to 50, the result is shown in the right image:



Reduce Reflected Colors 0



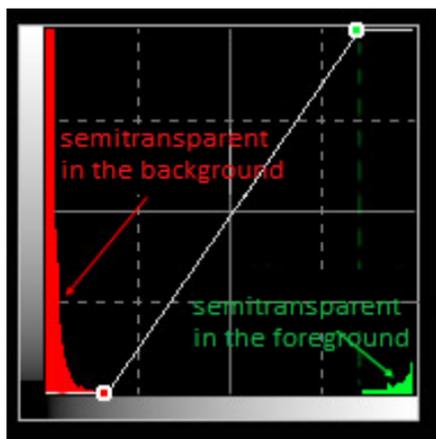
Reduce Reflected Colors 50



4.3 Curve window: Curvature of the mask

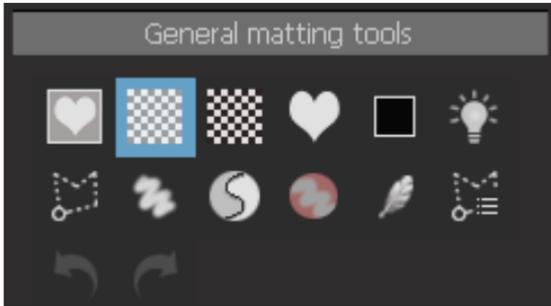
You can change the curvature of the cropping mask via the curve window. By clicking on the curve, additional adjustment points can be added so that the curve can be variably adjusted.

This makes it possible to adjust the display strength of the foreground pixels and the background pixels as required. The foreground pixels are displayed on the right side of the curve and the background pixels on the left side. The vertical axes determine the strength or transparency with which the respective pixel area is displayed in the image. If a curve point is moved downwards in the vertical direction, the transparency of this pixel area increases.



4.4 Matting Tools

Below the settings and parameters and the curve window for the curvature of the mask are the matting tools:



Display original image: By clicking on the heart symbol  (or by holding down the A button) you can display the original image before cropping.

Displaying your matting result in front of a new background: With the upper row of the matting tools, you can display the cropping result in front of different backgrounds. If you move the mouse over the image, the original is displayed. If you do not move the mouse, a fade-out effect automatically switches to the transparency view. This way, you can quickly compare which areas were included in the matting and which were not. The first symbol shows a transparent background . The adjacent symbols can be used to display the matting result against a black-and-white background (symbol with the black-and-white tiles), and to display the matting mask as a gray-scale image  (heart symbol): The foreground will be white, the transparent area black, semitransparent pixels gray) or the result will be displayed against a colored background  (colored rectangle).

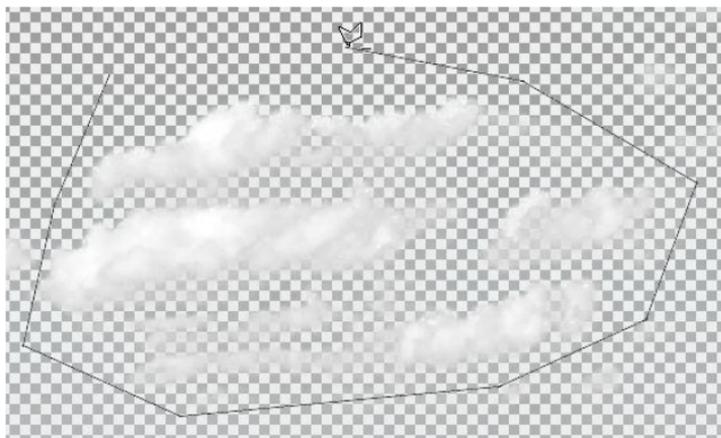
Increase brightness : This function lets you temporarily increase brightness levels within your image to make cropping easier. The brightness is not permanent and no changes in the original picture are made. This tool is perfect for dark images to make unclear edges between the object to be cropped and the background visible. In the example, the edges of the sculp-

ture in the foreground are difficult to tell apart from the background. When you brighten up the image, you can see that the edges are much more identifiable than before. This helps with cropping out the object correctly.

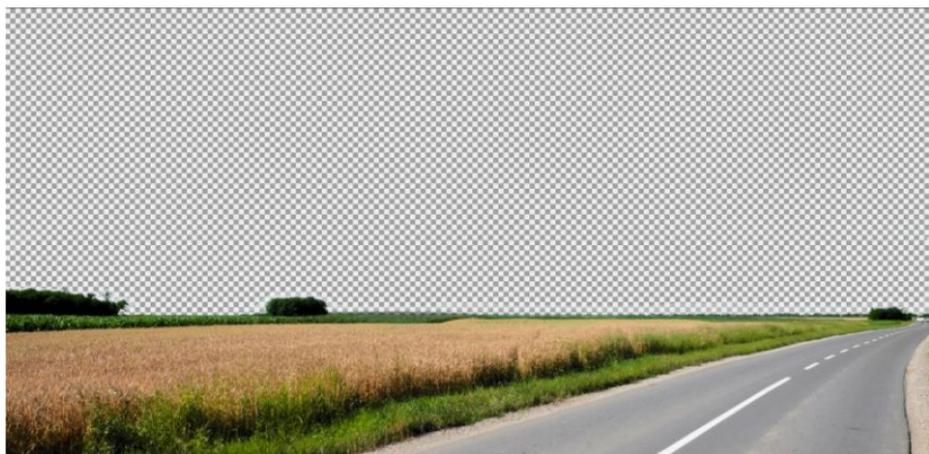


The matting tools in the second line are particularly interesting. With the **polygon tool**  you can select and remove (i.e. make transparent) any areas in the result image or bring transparent areas back to the foreground by matting. By pressing or not pressing the **SHIFT key**, the selected areas are either brought back to the foreground ('+' symbol next to the polygon tool) or areas in the foreground are displayed transparently ('-' symbol next to the polygon tool). If you hold down the **CTRL key** when using the polygon tool, you can also make a free selection and are not bound to the polygon.

This way you can also quickly remove the clouds from our example image. Simply select the polygon tool and make sure that the '-' symbol appears next to the tool, because we want to remove an object from the foreground (make it transparent) and not the other way around:

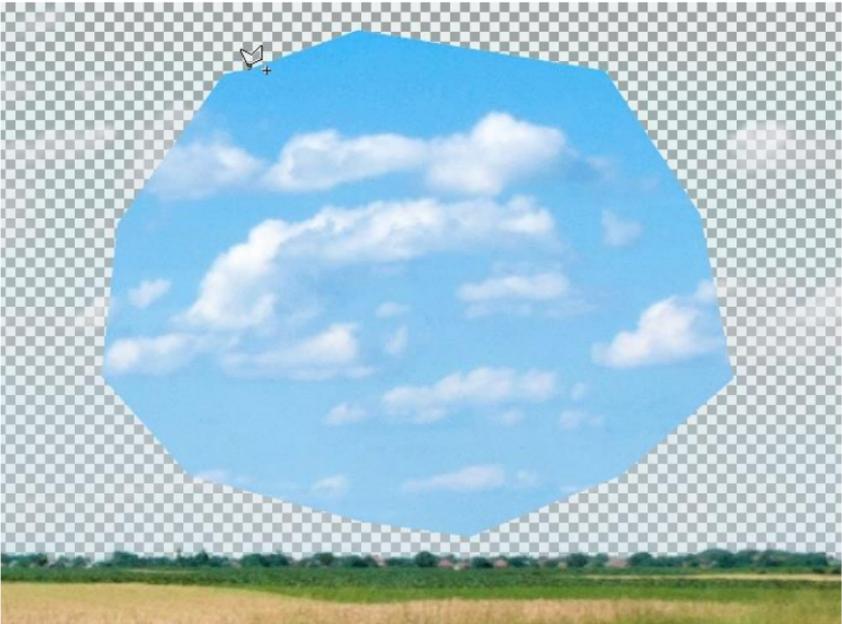


With a double click the selection process is completed and the clouds disappear at the same time:



To be able to work more precisely, you can magnify the section of the image you are working on by increasing the zoom on your mouse-wheel or on the zoom level next to the matting menu on the left.

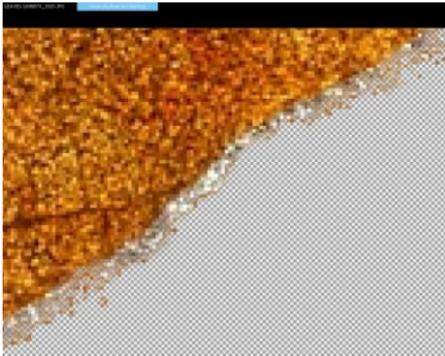
You can also bring already transparent areas back into the foreground. Make sure that the '+' symbol is displayed next to the polygon tool and then make your selection:



Edge Optimization: If you click on the polygon tool, the edge optimizing option will appear in the menu above. Here you can designate the pixel density of the area you wish to optimize.



Here's a comparison of the Edge Optimization options:



Original Image

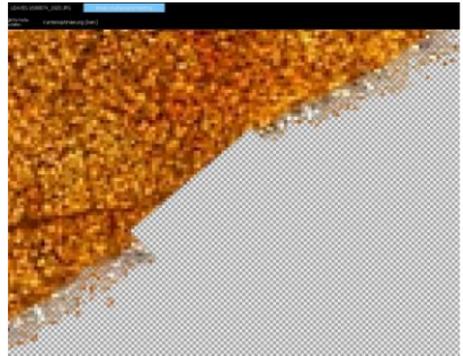
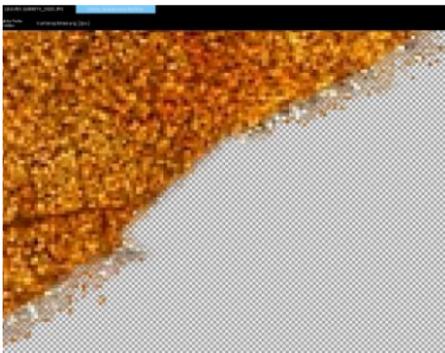
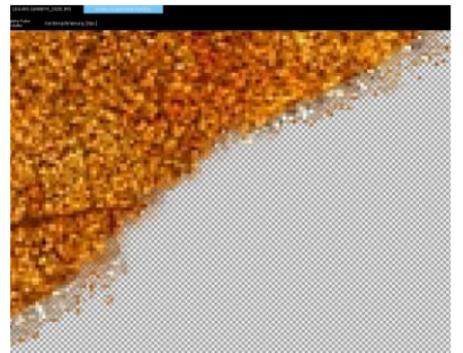


Image without Edge Optimization



2 Pixels



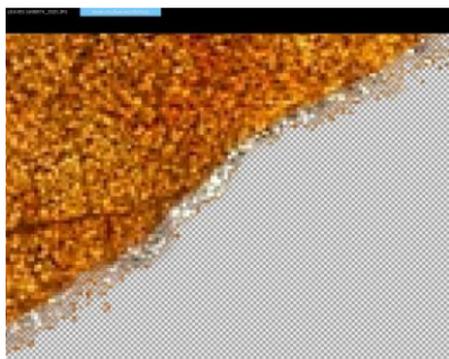
8 Pixels

Paint to modify tool : The paint to modify tool in the matting menu works according to a similar principle but using a brush instead of a polygon selection. Select the icon and set the brush properties in the upper menu bar:

Edge Optimization: If you click on the paint tool, the edge optimizing option will appear in the menu above. Here you can designate the pixel density of the area you wish to optimize.



Here's a comparison of the Edge Optimization options:



Original Image

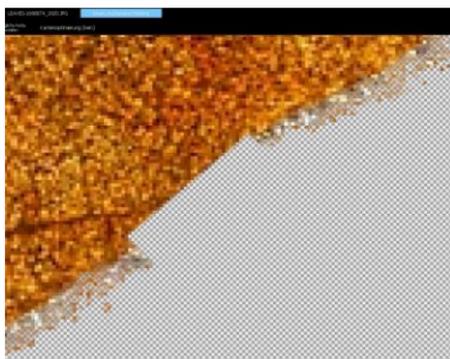
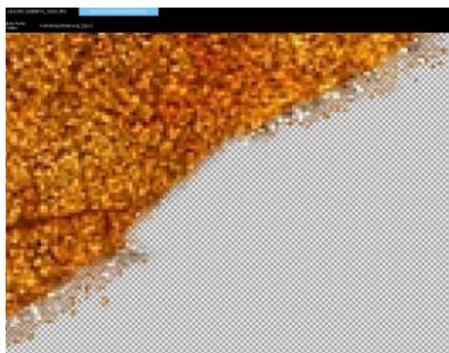
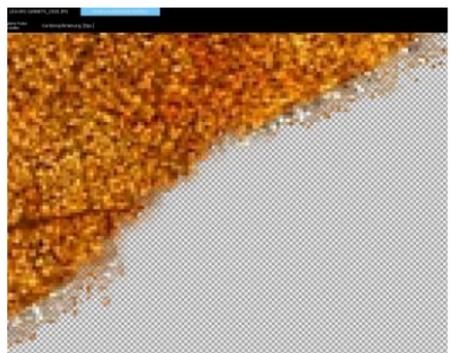


Image without Edge Optimization



2 Pixels



8 Pixels

In addition to the brush size, you can also set the softness and opacity. Similar to the polygon tool, press the **SHIFT key** or not to either bring transparent background back to the foreground or to make visible objects transparent.



To remove the clouds from our example image, we therefore press the **SHIFT key** while painting so that the small '-' symbol appears next to the pen tool and then paint over the clouds.

We set the opacity of the brush to 100, since the clouds should not become semi-transparent, but should disappear completely.

By the way, if you want to bring transparent areas back into the foreground, i.e. use the paint tool with a '+' symbol, you can check the **Recover original color** checkbox next to the brush properties. Then the transparent areas that you paint over will get their original color back.

Re-Matting Tool : The third option for assigning individual areas to the foreground or background is re-matting. To do this, select the Yin-Yang symbol from the matting-tool list. This tool allows you to select up to six hues that appear in the background and six hues that appear in the foreground. This tool is particularly useful for re-matting the edges of the fore-

ground object, i.e. the border between the object to be cut and the background. After you have selected the tool, first click on a background or foreground area in the image. If you move the mouse over the image, you will see that in the foreground area the pipette symbol is displayed with an 'F' and in the background area with a 'B':



Once you have selected a background color and a foreground color, the pipette tool switches to the brush tool. However, if you want to select more than one color for the background, press and hold the **SHIFT key** and then click other foreground and background colors in the image (up to 6 shades each). The tool will then switch to paint mode. First set the brush properties (size, softness and opacity) in the upper menu bar. The principle is as follows:

If you paint with the brush over the picture, **only** the color tones that you have defined as the foreground color remain, the rest becomes transparent. Similarly, the hues that you have selected as the background color remain transparent, but the rest becomes visible again when you paint over them. If you now paint over border areas between foreground and background object, the transition area can be optimized based on your selection of foreground and background color. Right-click to reset the color selection.

In our example picture the re-matting tool has the following effects:

After the simple matting by means of color selection there are some uncertainties in the border area between background (sky) and foreground (trees, meadow):



As you can see, some pixels in the transition area seem to be semi-transparent. To assign these more clearly to the foreground or background, we use the re-matting tool to define the foreground and background colors in the border area:



Be sure to hold down the **SHIFT key** if you are not finished with the color selection.

After defining the foreground and background colors of the border area, if you now move the paint to modify tool over this border area, you will see the following result:



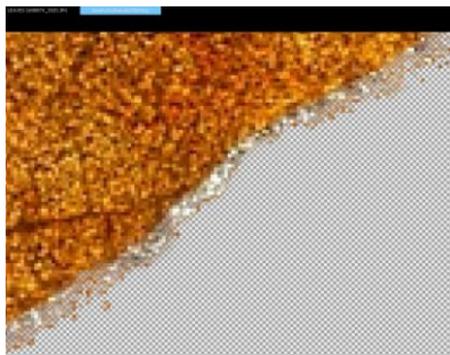
In this case the brush was moved from the left, i.e. from the right end of the group of trees, to the right. You see the difference in the red ellipse clearly in the left, already painted over border area and in the right, not yet painted over area.

Obviously questionable, "blurred" areas could now be assigned to the foreground or background to a large extent due to the exact color definition.

Edge Optimization: If you click on the re-matting tool, the edge optimizing option will appear in the menu above. Here you can designate the pixel density of the area you wish to optimize.



Here's a comparison of the edge optimizing options:



Original Image

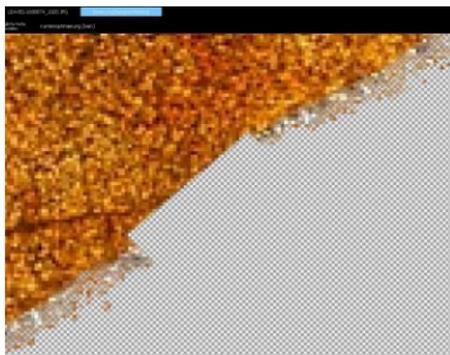
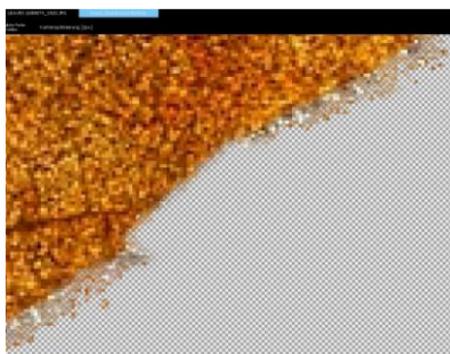
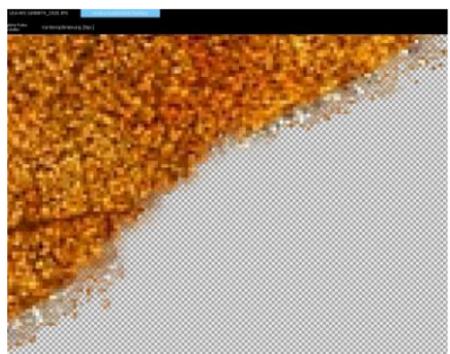


Image without Edge Optimization



2 Pixels



8 Pixels

Desaturate border areas: You can use the desaturation tool to desaturate selected hue areas. This can be especially useful if the edge of the clipped object contains the color of the background. Select the **desaturation tool**



and click on a hue in the border area of the image that you want to desaturate. Then set the brush properties in the upper menu bar and paint over the image. By reducing the opacity in the brush properties, you can vary the amount of saturation. Only the selected color range is desaturated, all other colors are preserved.

The following result is shown in our example image:



Before Desaturation

After Desaturation

You can see a less colorful transition between forest and sky. The colors of the border area have been desaturated.

Similarly, you can apply this effect to other areas of the image. If, for example, we want to desaturate the brownish grain on the field, the following result will appear:



Feather Brush : With the help of the feather brush, you soften individual areas of the cropping mask and thus create a better transition. The effects are often only visible when zooming in strongly. In the upper menu bar, set

the brush properties and then paint over the areas for which you want softer transitions.

Outline Selection Tool : Once you have applied the polygon tool, you can now make further improvements to your cropped result with the **Outline Selection Tool**. Simply designate whether your cropped object shows a simple edge structure or to apply curvature correction for more complex outlines.

- **Improved: Shall be simple edge:** “Simple” means that the edges do not contain holes, strands of hair or similar more complex features. Once you have selected this option, **CutOut 10** will optimize the selected region by applying a special algorithm. Here’s a comparison:

Comparison 1:



→ Simple Outlines



→ Complex Outlines

Comparison 2:



Original

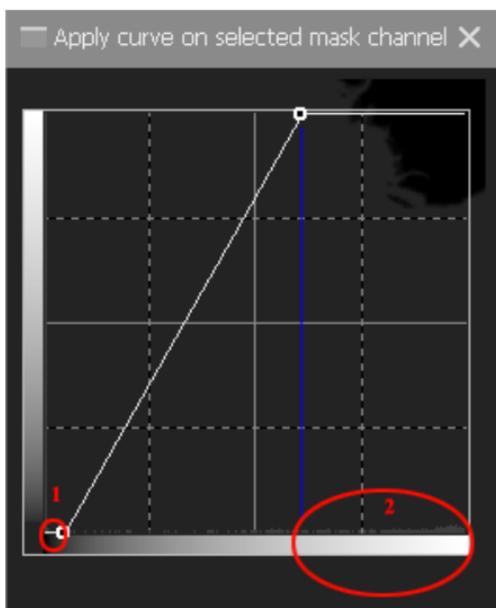
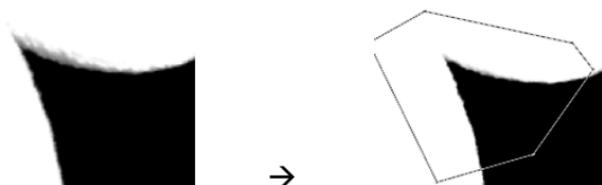


CutOut 9



CutOut 10

- **Curvature Correction:** This function applies a curve to further optimize your mask of the image. Select areas such as semitransparent edge regions and they will be reduced to the foreground or background depending on your curve settings.



Use the arrow icons to undo or repeat steps.



4.5 Cropping Intermediate Areas of an Object with Edge Tool

Often you are confronted with objects you that have elements of the background situated within them that need to be removed.

Typical examples are photos in which people have their hands situated on their hips, or as in our example below, positioned on their heads or hats:



When cropping such an image using Inside/Outside Edge Matting, the outcome becomes problematic since the areas between the arms, head and the hat are not removed, remain in the cropped result.

With the edge tool in **CutOut 10** you can easily remove these regions by outlining them individually after drawing the inside and outside outline around the entire person:



The result of this edge definition speaks for itself:



4.6 Additional Tips for cropping complex objects

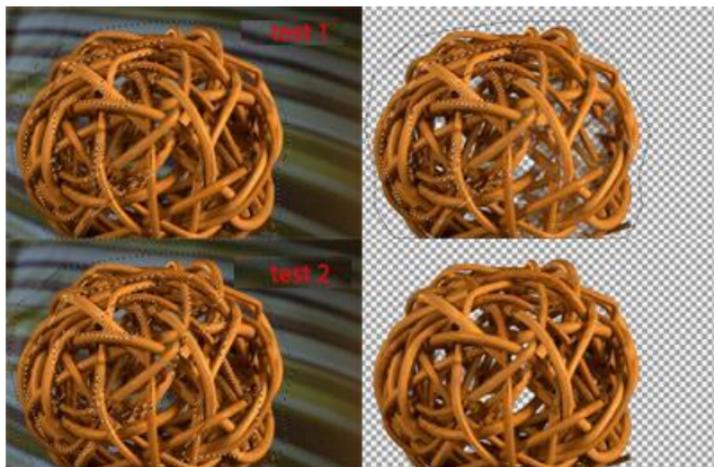
Close to the edge or farther out?

If the area has different colors or textures, try to select the areas as precisely and close to the edge as possible. If the subject is rather simple and explicit, a rough selection is sufficient.



How to crop a complicated object?

You can first create a rough selection and extract it. Check the result. If the foreground or background becomes semi-transparent, use the addition or subtraction mode of the polygon tool to add a pattern or use the matting tools discussed in the previous chapter. Then repeat the matting until you get a good result. The injection tool is also very useful in this case.

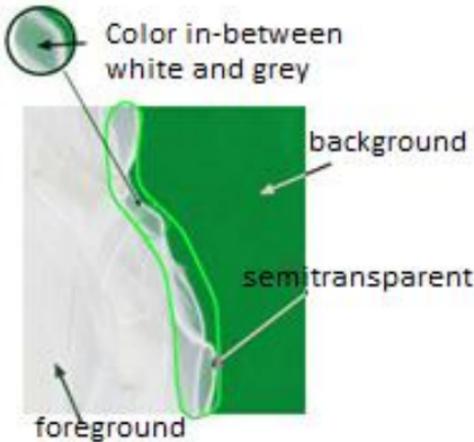


5. Digital Matting: Good to Know

Matting is understood as the process in which the foreground and background are separated within an image. For this to be realized, one must generally follow a number of fundamental steps.

- Define the edges of the foreground object.
- Determination of opacity (transparent, semi-transparent or opaque).
- Inverse calculation of the original color tone of semi-transparent pixels.

Why calculate semitransparent pixels inversely? The following example illustrates this:



The pixels located in the semi-transparent area appear white in the original photograph. Since these are semi-transparent, the green hue of the background is mixed with the white pixels.

When the object is cropped and placed in front of a new background, this pixel grouping shows a green shimmer. This effect can be avoided through

the inverse calculation and the resulting reinsertion of the original color tone into semi-transparent border region of the object:



without inverse calculation

with inverse calculation

5.1 Matting Technologies in General

Standard Method

The simplest method when it comes to cropping involves marking the foregrounded object and removing it from the image. One problem with this procedure is the fact that semi-transparent pixels are not considered when the object is removed.

Advanced Tools

Advanced tools such as the magnetic lasso are also available for use, however the same problem arises as in the standard outline selection method, that is that semi-transparent pixels are not included in the cropping procedure.

5.2 Chromakey Matting

This procedure originates from the video sector. The object to be cropped is filmed or photographed against a monochrome, usually blue or green, background. All pixels that do **not** have this constant color are then assigned to the foreground.

With this procedure, however, it is assumed that the foreground object is not transparent: a translucent garment, for example, would shimmer blue in front of a Chromakey, even if it were placed in a new background. This leads to an unnatural look, as you can see in the early action movies during stunts against an artificial backdrop.

This method is very useful, but has two limitations:

- The background color cannot be included in the foreground. If the color is in the foreground, it is assigned to the background and appears transparent or semi-transparent in the composition.
- In any case, a plain background is required. Differences in color are not considered and added to the selection.

For this reason, Chromakey technology is usually only used in professional environments.

5.3 Inside/Outside Edge Matting

Due to the limitations of Chromakey Matting, we need another way of matting. This should have no background restrictions, support semi-transparency and be easy to use.

These criteria are fulfilled by the Inside/Outside Edge Matting process, which is very suitable for processing most photos.

With this type of cropping, the inner and outer edges of the object to be cropped are defined. The selection of the inner area is done by marking an area within the object to be uncovered. Work as close to the edge as possible. The outer area is then marked, working as closely as possible to the

outer edge. The area between the inner and outer edge is the semi-transparent area. Because the program can never determine the actual color values 100% exactly, errors often occur during the first processing.

Common Error Examples

1. The exact recognition of the difference between the foreground and background can even prove difficult for the human eye:



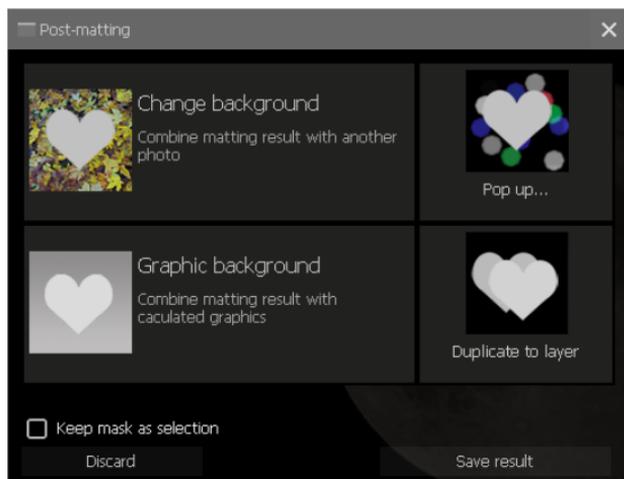
2. The program attempts to calculate the difference in the background and foreground colors. However, when numerous differences make the foregrounded object less distinguishable from the background, errors can occur in the calculation.



6. The Post-Matting Menu

After you have completed the matting stage and optimized your cropped result with the help of the various matting tools available, there is nothing holding you back from continuing to the next stage of editing. If the matting result reflects your desired outcome, click on the **Apply** button in the matting menu.

Next, the post-matting menu will appear with the following options:



- **Change background:** This option allows you to place your previously cropped object in front of a new background image of your choice. For example, you can “change the location” of your newly cropped object.
- **Background blur:** When you select this function, the program switches to blur mode. In this mode, you can blur the background of the image very variably. The background is retained and only this background is affected by the blur effect. This allows you to achieve impressive depth of field effects.
- **Duplicate to layer:** This function inserts the matting result as a separate layer in the user interface. You can then use this layer as you like. You can either save the matting result or edit it professionally with the numerous editing options and effects of **CutOut 10**.
- **Split layer:** This function can only be activated when working with a base layer and saves both the foreground and background as their own layers.
- **Delete background:** Only active if it is not a basic layer. The background is deleted and only the detached object is retained as the layer.

In addition to these options, choosing the option **Save Result** will allow you to save your matting result to any location of your choice in either .png or .psd format.

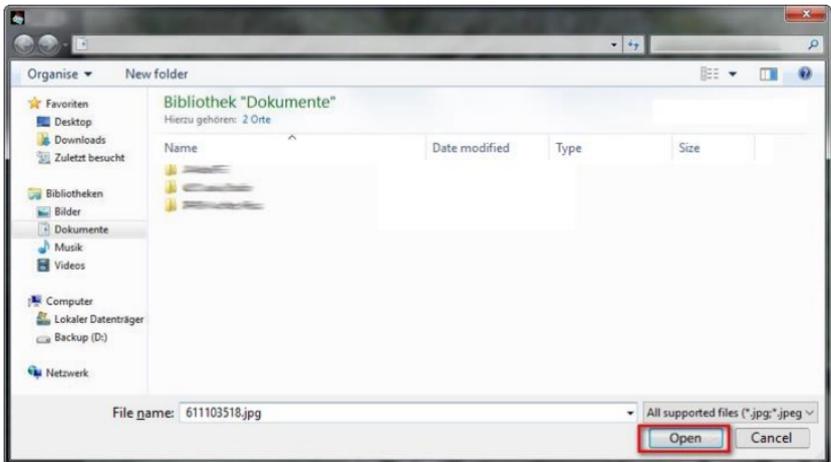
6.1 Changing the Background Image

Example:



To move it to a warmer place, we select **Change Background** in the post-matting menu after the matting.

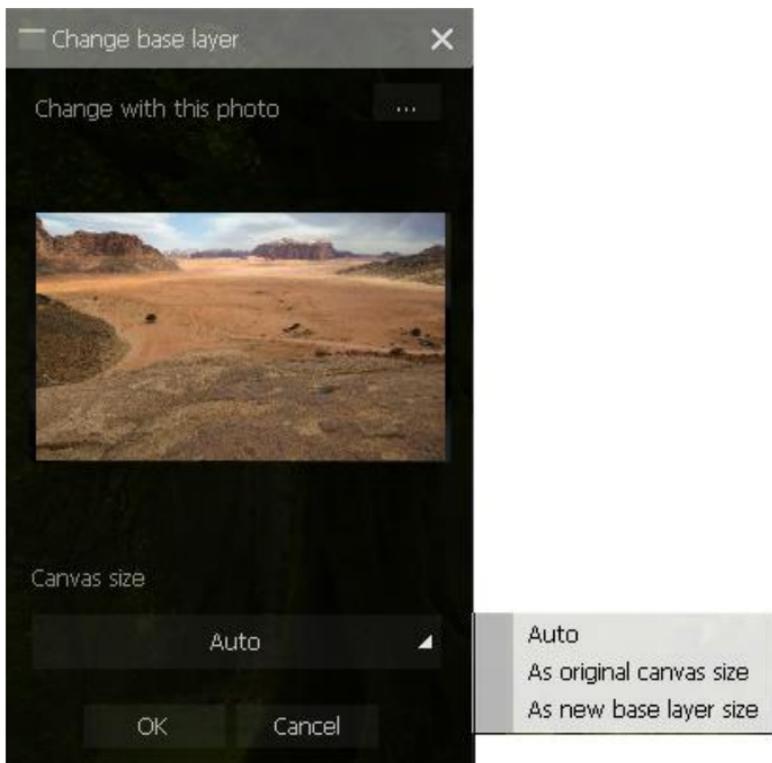
A file browser will open in which you can search for the background image that will serve as the background for the penguin:



Navigate to your desired background image, select it, and then click **Open**.

Now a dialog opens in which you have the possibility to set the size of the background image individually. You can choose between **Auto**, **As original canvas size** and **As new base layer size**. To select a different background image, click on the button  in the dialog box.

To confirm your setting click **OK**, to cancel the process click **Cancel**.



Afterwards, the object is displayed in front of the new background:



If you click on the image, hold down the mouse button and move the mouse back and forth, you can move the object, in this case the penguin, as you like. If you move the object a little so that the edges of the image are displayed, you can also enlarge or reduce the object by moving the mouse to the corner of the edge of the image until the arrow appears:



Hold down the left mouse button and move the mouse to change the size. When you move the mouse pointer to an area outside this border, the following icon appears:



Then hold down the left mouse button and move the mouse to rotate the object at any angle. Theoretically you can turn the penguin upside down.

If you are satisfied with the size, angle and position of the object, click on the **OK** button in the middle of the image:

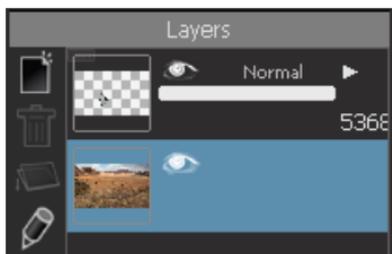


The adjusted image now appears in the user interface:



In this case the penguin was reduced in size and moved to the left. In addition, the cropping result, i.e. the penguin with a transparent background, is present in the area of the layers (red arrow in the image). So, you can now proceed with the cropped object afterwards as you like (edit, save etc.), if you don't like the selected background after all.

To display the penguin without a background image, simply deactivate the background layer by clicking on the eye symbol:



6.2 Background Blur

Often you will have the following problem with your images: your photo shows an object, an animal or a person you want to focus on. However, both the object and the background appear sharp. It is a good idea to bring the target object into focus by blurring certain areas of the background

while keeping the target object sharp. Thus, the depth of field of the background should be changed. The **Background Blur** function of the post-matting menu helps here.

In the example image you can see two flamingos, which are obviously the target object of the photo. But the background is sharp, too. It should now be slightly blurred to focus more on the flamingos.



If you select **Lens Blur** after the matting process from the post-matting menu, the lens blur menu appears:



- (1) **Radius Range:** Here you can use the slider to define the radius of the blur effect. As you will see, a high value increases the blur effect of the background.
- (2) **Highlight:** Use the highlight slider to define how much highlights of the background, i.e. bright image areas, should be highlighted. In the example image, these are the bright areas in the water where the sky is reflected. A high value makes these areas appear even brighter and thus emphasizes them.
- (3) **Aperture Shape:** Here you can change the lens shape to change the type of blur effect. Try the different shapes until you find one that suits your needs.
- (4) **Rotate Mask:** Use this slider to change the direction of the blur effect between 0 and 360 degrees.
- (5) **Depth Mode:** In depth mode, you can switch between **Plain**, **Horizon** and **Tunnel**.
Select **Plain** to get a smooth blur effect across the entire background.
Select **Horizontal** to obtain a different amount of blur effect be-

tween near areas of the background and more distant areas.

Select **Tunnel** to blur certain regions of the background.

The grid below allows you to specify the region or, if you select **Horizontal**, the position of the horizon from which you want to blur or sharpen.

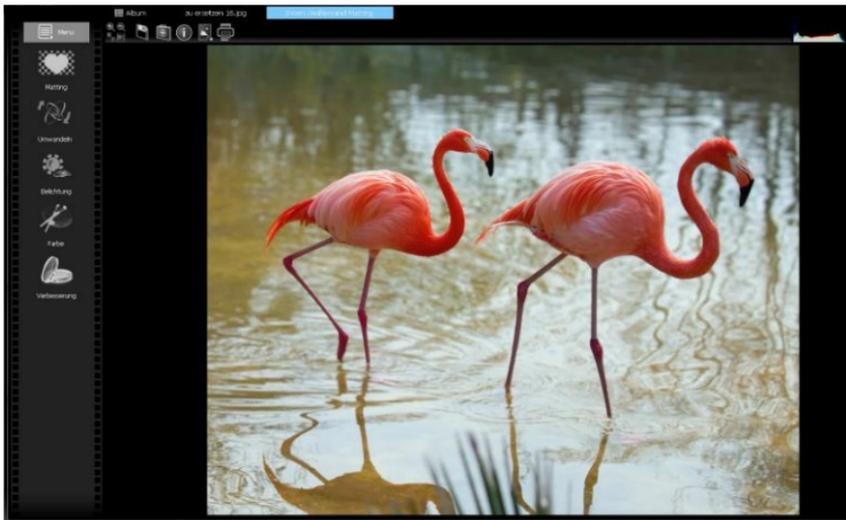
In our example image, we select **Horizontal** to keep the close areas of the background, i.e. approximately the area in front of the flamingos' legs, sharp and to blur the more distant areas of the background. With the grid we determine the distance from which the background image should be blurred:



Playing with the settings helps to become familiar with the features and understand the implications.

- (6) **Focus (close to far):** This slider lets you ultimately reverse the depth-of-field effect. For the example image, in which the horizontal depth mode made the near background areas sharp and the far background areas blurred, a change from focus (close to far) from 0 to 100 would completely reverse the focus area. The close background areas would become blurred and the far background areas would become sharp.

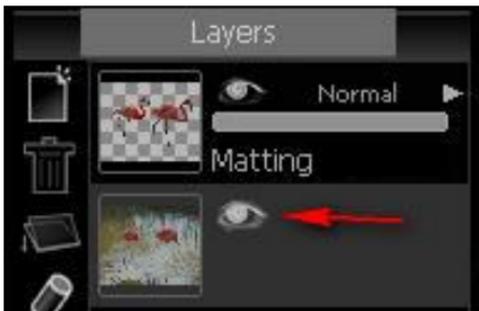
When you are satisfied with your depth of field effect, click **Apply** and then **OK**. In the case of the sample image, the result is as follows:



As you can see, the close background areas and the flamingos are sharp, i.e. in focus, whereas the more distant areas of the background are blurred.

In addition, the cropping result, i.e. the two flamingos with transparent background, is now available in the layer area. You can continue with the extracted object afterwards (edit, save etc.) in case you prefer a differently styled background.

To display the flamingos without background, simply deactivate the background layer by clicking on the eye symbol:



6.3 Duplicate to Layer

In the post-matting menu, select **Duplicate to layer** to simply obtain the object just released in the matting menu as a separate layer without changing the background image or depth of field, and then edit (save, etc.) it further.



6.4 Split Layer & Delete Background

The functions **Split layer** und **Delete Background Layers** cannot be chosen after an object has been cropped form a base layer. These two functions may only be applied when a float layer has been edited in the mattin menu. A float layer is a layer that has been created from a base layer, for example when a selection has been made and copied from a base layer and then added as its own layer.

The function **Split layer** separates the foreground image from the background image and creates two individual layers. The first layer contains the Matting result and the other the rest of the original image, of course with a hole from where the object was cropped.

The function **Delete background** creates an individual layer for the newly cropped object and deletes the remaining background of the original im-

age. Should you only need the cropping result and not the background, this option is the right choice.

7. Edit images

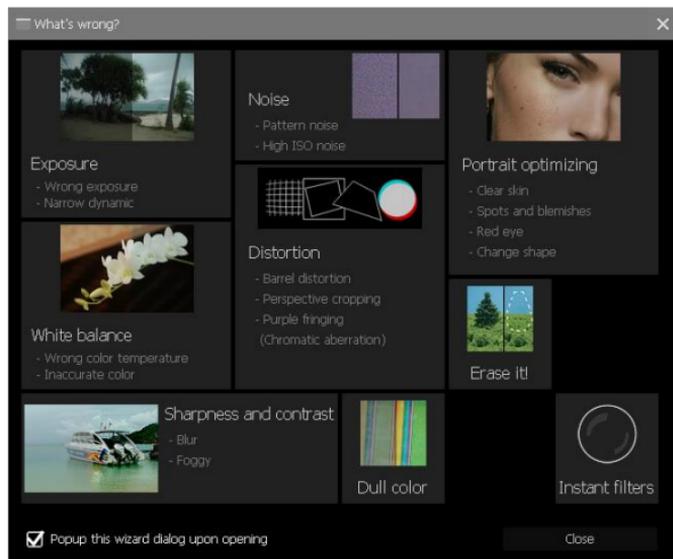
In **CutOut 10** you will find a variety of editing options for your images and clipping results in addition to the options described for cropping objects. Different effects and filters are available for optimizing your images.

To edit an image, select it in the album mode you are in when you start **CutOut 10**, as described in the *User Interface* chapter, and click the **Edit** button.



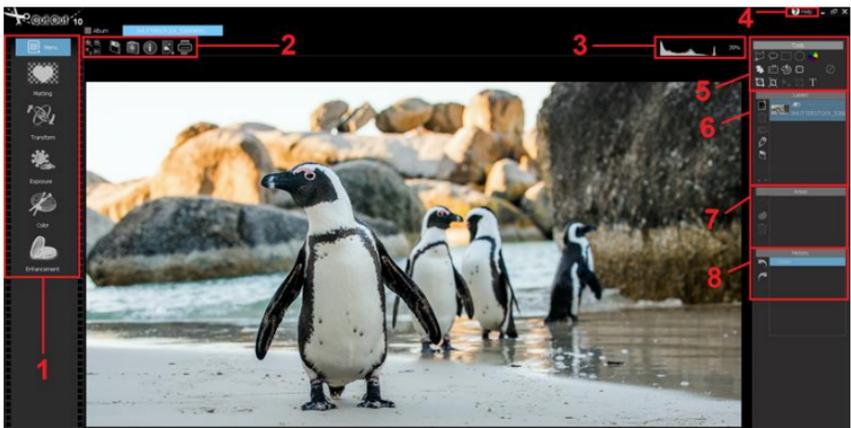
The image will now be opened in editing mode.

The Image Assistant appears first:



In this menu you can quickly find the right editing function for specific problems in your image. This assistant offers you quick solutions without a long search. All the functions in this menu can also be found in edit mode, so first we close the assistant and go through the functions in edit mode step by step. If you do not want this assistant to reappear every time you open an image in edit mode, simply uncheck the box at the bottom left of **Popup this wizard dialog upon opening**.

7.1 Editing Mode – Overview

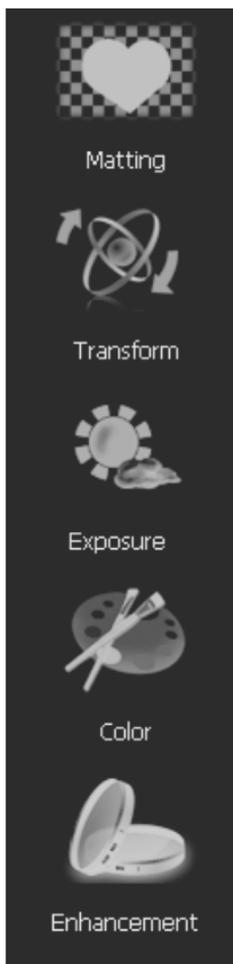


- (1) Editing Functions:** The editing functions matting, transform, lighting, color and enhancement are further divided into different editing components and tools which will help you to optimize your image result. You can choose the editing function best suited for your project needs from this menu. Clicking the button **Menu** will allow you to select from all the editing options as well as further adjust various program settings, such as the language preferences.
- (2) Additional Functions:** You can use the displayed icons to either adjust the image display size, save the image (disk icon), call the

image assistant (doctor's case icon), display the image properties (information icon), add an image as a new layer (image icon) or print the image (printer icon).

- (3) **Histogram:** This region displays the histogram of the current layer. The percentage amount on the right denotes the zoom level. Clicking on this percentage will allow you to change it.
- (4) **Help:** Refers you to this manual.
- (5) **Tools:** Here you will find the selection tools for specifying regions of the image for editing in addition to various other useful editing tools.
- (6) **Layers:** In the layers-window you can view all available layers. You can also delete, add, rename, relocate as well as adjust opacity levels and merge layers in this window.
- (7) **Areas:** Here you can save a selection made with a selection tool as a mask and apply it again to a selected layer at any time.
- (8) **Project History:** The project history shows you the steps you have performed so far. Here you can undo or restore individual steps.

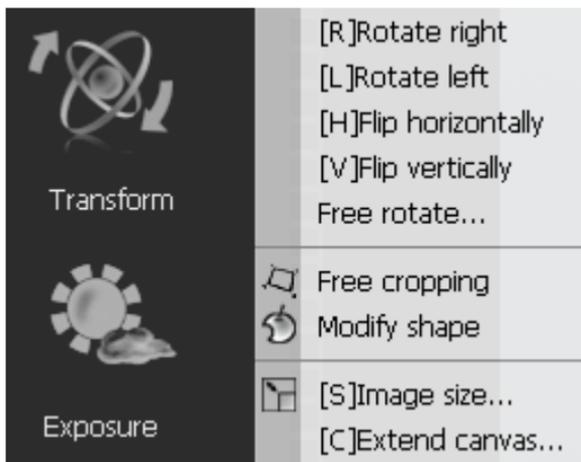
7.2 Editing Mode – Detailed View



7.2.1 Matting

Since matting has already been explained in detail, reference is made here to the corresponding chapters of this manual.

7.2.2 Transform



With the sub-functions of the **Transform** menu you can rotate, crop, mirror, change the image and canvas size or change the shape of your image.

Via **Free Rotate** you can rotate the base layer at any angle. Optionally, you can specify whether the result should be cropped automatically or not:



This function can only be applied to the base layer.

With **Free Cropping** you can not only crop your image with a rectangular selection, but also create an arbitrary square by moving the four touch points and thus better adjust the area to be cropped:

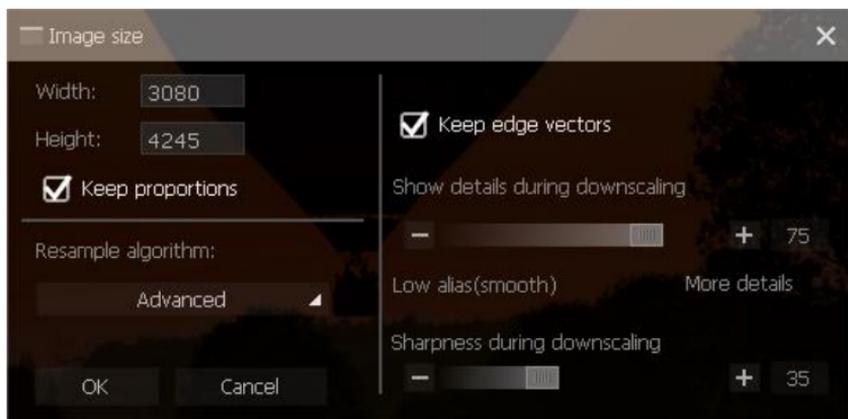


If you have moved the anchor points according to your wishes, click **OK** and the result will be accepted.

With **Modify shape** you can use the brush tool to distort the shape of the image at any point. You can determine the size and strength of the brush using the brush settings in the upper image menu:



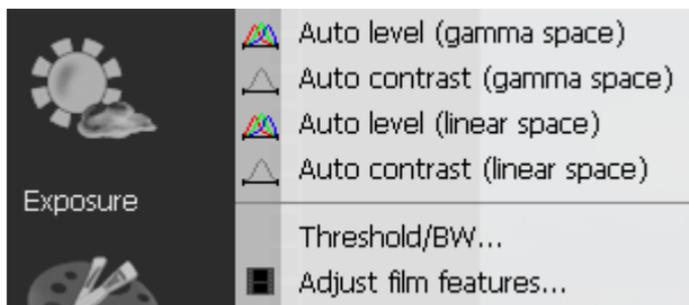
Image size determines the width and height of the image as well as other settings for the resizing process. As a resampling method, you have various more or less complex algorithms at your disposal for the recalculation of the image size.



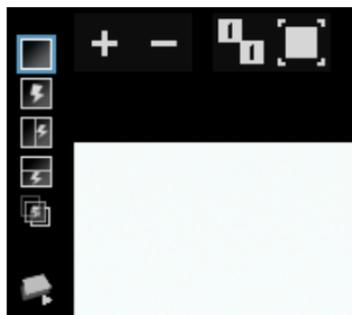
Via **Extend canvas** you can change the size of the desktop. The size of the image remains the same. In the right area you can set the position of the image on the canvas and select the background color. Click **OK** to confirm.

7.2.3 Exposure

Often the exposure in photos is suboptimal. Either images are over-exposed or under-exposed. Classical examples are pictures taken against the light or in dark areas. These problems can be counteracted in **CutOut 10** with the exposure tools.



In order to determine the areas more precisely, zoom into the image, either by clicking on the magnifying glass symbol, or simply by scrolling with the mouse wheel. You can change the formatting of the preview view by clicking one of the options to the left of the plus symbol:



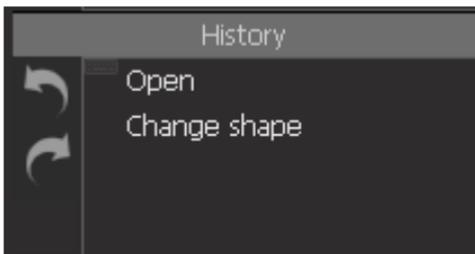
The symbol with the two ones shows the image in its true image size, thus 1:1; the symbol right beside it adjusts the size of the image to the window

and the symbol at the very bottom left allows to mix the before and after image.

With the functions **Auto level (gamma space)**, **Auto contrast (gamma space)**, **Auto level (linear space)** and **Auto contrast (linear space)** you can have **CutOut 10** automatically optimize the exposure with regard to contrast (auto contrast) and tonal values (auto level).

With the gamma space option, the automatic optimization takes place as a gamma function and thus not linear, with the vector space option as a linear function.

If your image is not optimal in terms of exposure, you can make improvements in this way. If you don't like the result, simply click **Undo** in the progress window:



Threshold/BW function: This function converts your image to a black and white image and allows you to define various settings.

The **Threshold** slider determines at which threshold areas are displayed either white or black. For clarification: If you set the slider very high, i.e. very far to the right, bright regions of the original image will also appear black and only very bright regions will remain white.

Similarly, if you move the slider far to the left, very dark areas of the original image will appear white and only the extremely dark areas of the original image will remain black.

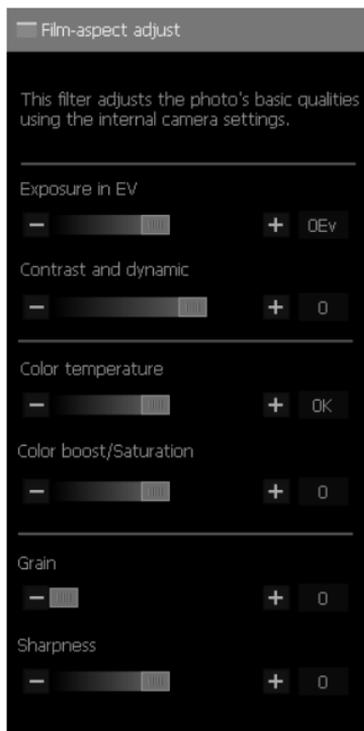
Use the slider **Transition level between black and white** to set the number of gray tones that lie between pure black and pure white. If you only want black and white, set this slider to zero.

The slider **Size of adaptive area** only becomes active when you set the **Adaptive threshold** option under method above. With the **Adaptive threshold** method, there is no global, fixed threshold value, but many local threshold values. Use the slider to determine the size of these local areas, each of which has its own threshold value.



In addition to the fixed threshold and the adaptive threshold, there are also preset methods **Diffuse** and **Halftone** for selection. If the adjustments to your image meet your preferences, click **OK**, otherwise click **Cancel**.

Adjust film features simulates the internal camera settings to adjust the basic properties of the photo.



Use the slider **Exposure in EV** to adjust the global exposure value. Increase the global exposure by moving the slider to the right or decrease the exposure in the image by moving the slider to the left.

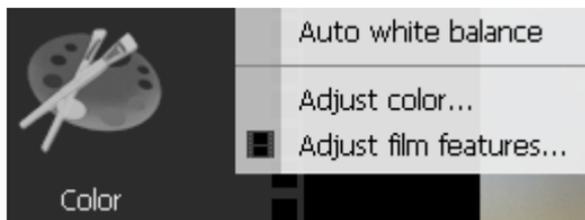
Use the **Contrast and Dynamic** slider to adjust shadows and highlights in the image. A high value brightens the dark, shaded areas and darkens areas with bright lights.

The **Color temperature** slider lets you determine whether the image should tend to be cool or warm. This gives it either a red or a blue tint.

Color boost/Saturation adjusts the saturation in the image. High values will increase the intensity of the colors in the image, while low values will decrease the color intensity. A value of zero will render the image colorless, i.e. in grayscale.

Use the **Grain und Sharpness** sliders to create a grain in the image or sharpen the image. If the adjustments to your image meet your preferences, click **OK**, otherwise click **Cancel**.

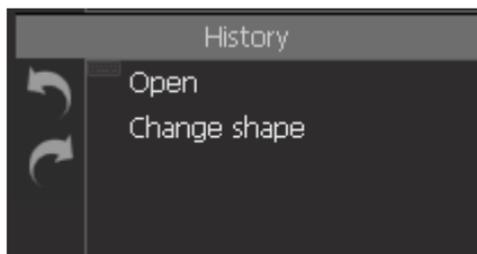
7.2.4 Color



With the color tools you can make all conceivable color corrections for your picture. Some of the tools overlap with those in the Exposure section.

With **Auto white balance** you can leave the white balance completely to **CutOut 10**. The color temperature of the light is automatically adjusted.

If you do not like the result, simply click **Undo** in the progress window:



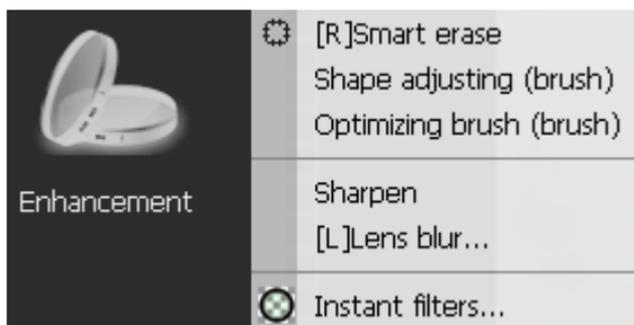
The function **Adjust Color** allows you to individually adjust the color scheme of any one of the images. Before proceeding, you can choose to edit using either RGB or HSL. Options in the hue range bar make it possible to exclude specific tonal ranges from being affected by further changes. These can be defined by adjusting values along the slide control.



If the adjustments to your image meet your preferences, click **OK**, otherwise click **Cancel**.

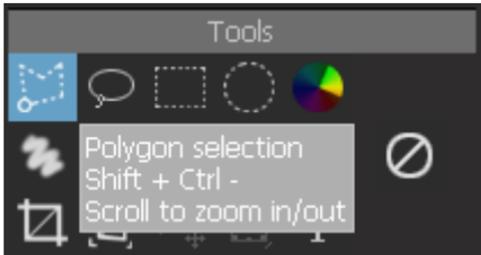
The **Adjust film features** function was introduced already introduced previously in the manual. Please refer to the chapter covering the various exposure tools and functions for more information.

7.2.5 Enhancement



These enhancement tools deliver plenty of possibilities to optimize your image, remove flaws and make necessary corrections.

Using the **Smart erase** tool automatically removes disturbances from your image. However, this requires that you first select the image area in which the disturbance occurs with the selection tool. Select a selection tool from the Tools window and select the disturbance in the image by clicking the area step by step. Double-click to complete the selection.



In this case a disturbing stone is to be removed from the ground, so it is selected with the selection tool:



After selection, the **Smart erase** tool is chosen and applied. This tool can be found in the Enhancement menu as **[R]Smart Erase** and only needs to be clicked. The program does the work.

This is the result:



The stone has thus been “intelligently” removed and the remaining hole filled with the surrounding ground pattern. This function is well suited for removing distracting folds in clothing or skin impurities when editing portraits. If the adjustments to your image meet your preferences, click **OK**, otherwise click **Cancel**.

The **Shape adjusting (brush)** allows for the free distortion of your image. Using the brush-tool, simply hold down the left mouse button and glide your cursor across the image. Brush-settings can be further adjusted in the window on the upper left-hand side of the screen. If the adjustments to your image meet your preferences, click **OK**, otherwise click **Cancel**.

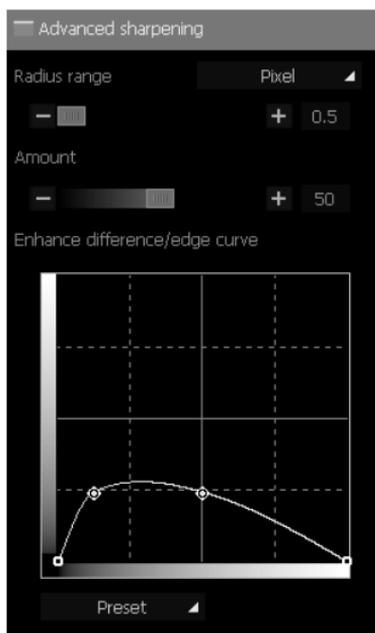
The **Optimizing brush** is almost identical to the **Smart Erase** tool introduced in this chapter. However, with this tool, selections of regions containing elements in need of improvement are not made with one of the various selection tools, rather with the brush tool.

The **Sharpen tool** offers several ways to increase the sharpness of your image. **Sharpen** automatically sharpens the image. **With Shrink Edge**, edges in the image are automatically detected and reduced, which also causes sharpening in the image. **Sharpen texture** is used to sharpen the image structure.

With the slide control you can designate the intensity and radius of the sharpening effect.

Manually reducing edges can be done by designating anchor points along the curve. These points can always be relocated at any time. An alternative option would be simply choosing one of the available preset options.

You can perform a manual edge reduction using a curve fitting. Click on any point in the curve to add further handle points that you can then move as required. Alternatively, select one of the displayed presets.



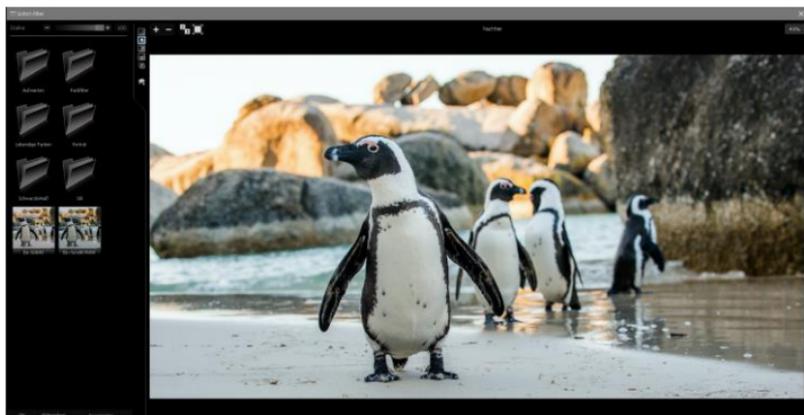
There are also several options available for the **Blur tool**: blur creates an automatic blurring of the image. With the **Gaussian blur** you can determine the area radius manually and with the lens blur you even have several setting options. For an explanation of these, please refer to the chapter on post-matting. This chapter explains the functionality of the **Lens blur** in detail.

Next to the **Style** option you will find **Image distortion**. Click on **Image Interferences** and you can add noise and scratches to the image using various

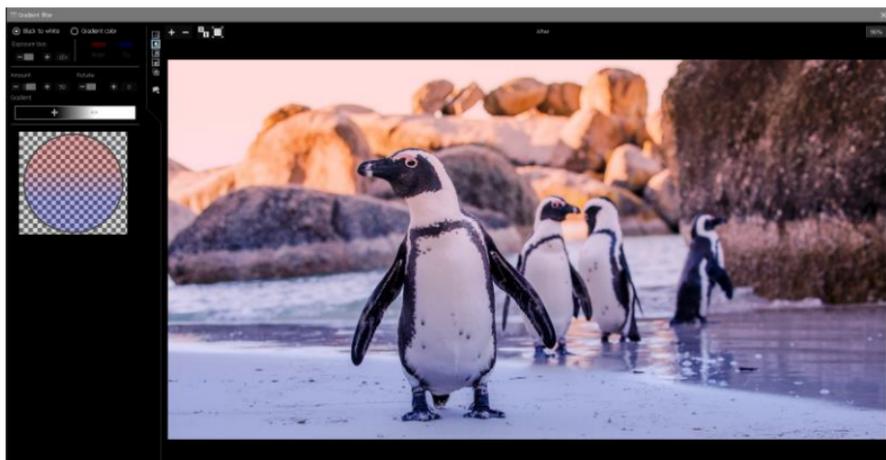
controls. Large image files should be scaled smaller to increase processing speed.



CutOut 10 offers an additional collection of filters which can be applied to your images.



Instant Filters: Adapt and optimize all your photos easily with the **Instant Filter** collection. Clicking on any of the filters at the left will display your image with this filter as a preview. **Apply** will adopt the filter effect you have selected.



If the adjustments to your image meet your preferences, click **OK**, otherwise click **Cancel**.

7.2.6 Tip for the Edit Mode

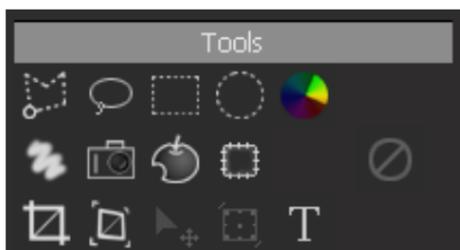
In *CutOut 10* you have the ability to simultaneously open multiple images for editing. To do this, select an additional image from the album folder and click on *Edit* after already having opened the first in editing mode.



7.2.7 Tools

On the right side of the menu in editing mode, you can find four different windows labelled Tools, Layers, Areas and History.

You have the following options from the tool collection at your disposal:

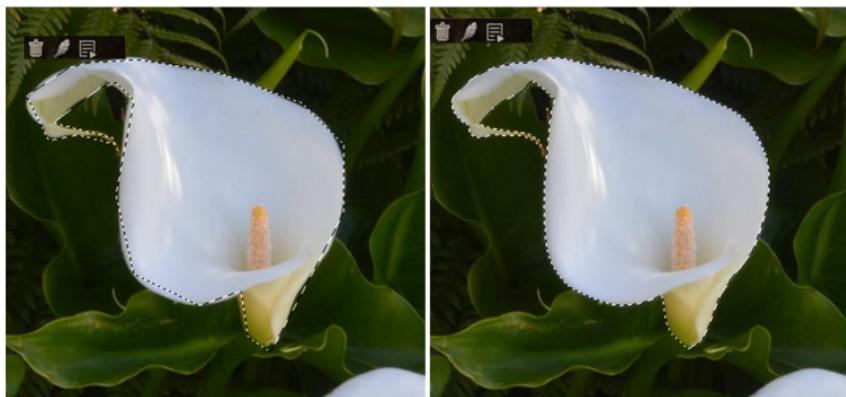


The first row contains the selection tools used to designate individual regions within your images. These include the **polygon tool**, the **free selection tool**, the **rectangle** and **circle tool** as well as the **color selection tool** – used to designate regions according to their color tones. After selecting the polygon tool, for example, click on the desired region and end your selection with a right-click of the mouse. You can continue editing this selection with any of the additional editing tools at your disposal. In the area surrounding

your selection, a drop-down will appear providing you with further editing options:



Improved: Magnet Tool : This function is best suited for selecting objects with clearly identifiable edges situated in front of simple backgrounds. Once you have outlined an object in your image with one of the various selection tools, the selection menu will appear. Go to **“More functions...”** and click on the magnet icon to automatically improve your selection. This way, you can quickly and easily select simple objects without having to switch to matting mode. The edge detection has been improved for an even more accurate result in this new **CutOut 10** version. The tool hugs the edges of the selection perfectly and, therefore, allows a precise selection.

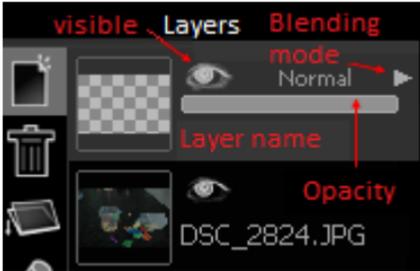


In the second line you will find from left to right:

- **Free Paint Tool:** This tool allows you to paint in any color you wish. Furthermore, the brush settings can be adjusted at the top of screen.
- **Camera Paint/Copy Pixels:** Once you have chosen this tool, determine the brush settings to your liking at the top of the screen. Now, click on any point in the image you wish to serve as the pixel source. This pixel grouping will be copied wherever you paint throughout the picture. This tool serves as an appropriate solution for improving or fixing imperfect areas in your image with like-natured pixel groupings.
- **Modify Shape:** This tool, represented by the apple-symbol, enables you to distort your image by simply painting over desired areas.
- **Repair:** Select this tool and paint over a region you wish to improve. This area is enhanced according to the properties of the immediate surroundings. Just like that you can quickly and easily remove small imperfections and problem areas within your image.

In addition to the cropping and trimming options mentioned in the chapter covering the various transformation functions, you can use tools from the third row to add text to your images. To do this, first click on the area in which you want the text to appear. Following this, the text settings menu will appear where you can format the text and select the font. Your text input will appear as its own layer in the **Layer** window allowing for it to be edited and transformed or for filters to be applied, just as any other layer type.

7.2.8 Layers



All the layers available for editing appear in the layer window. If you open an image in the edit mode, this is initially the only available layer. Once text is added, image regions are copied or cropping results are created, these will all appear in the layers section and can be further selected or edits with one click of the mouse.

The left side of the layers window contains the options concerning the addition of new layers, the deletion and merging of selected layers as well as renaming and saving functions for existing layers. The two small arrows at the bottom allow you to change the order in which the layers appear. Layers situated “higher” on the list will cover layers lower down. The keyboard combination **STRG + C** and **STRG + V** allows for layers to be copied and pasted, in other words duplicated.

After selecting a layer, clicking the eye-symbol will either show or hide this specific layer. The tab below controls the opacity settings for the respective layer (not available for base layers). Reducing this value makes the layer more transparent. The dropdown menu for merging layers can be accessed by clicking on the **Normal** option (also unavailable with base layers).

The following options are available when merging layers:

Darken: According to the color information present in each color channel, this option designates darker colors (base or mix color) when determining the color result. Pixels brighter than the mix color are replaced and pixels darker than the base color remain unmodified.

Lighten: According to the color information present in each color channel, this option designates brighter colors (base or mix color) as the color result. Pixels darker than the mix color are replaced and pixels brighter remain unmodified.

Multiply: This option multiplies the base color by the mix color according to the color information present in each color channel. The color result is always a darker one. Multiplying a color with black always results in a black color result and multiplying a color by white has no effect on the base color. When painting with a color other than black or white, colors will darken with each consecutive stroke. This effect resembles the effect of overlapping colors when drawing with multiple highlighters.

Screen: The pixel values in each of the layers is inverted, multiplied, and inverted once again. This is the reverse effect of the Multiplication mixing mode. This results in a brighter picture.

Overlay: The Overlapping Mode is a combination of multiplication and division. The deciding factor for this mode is the top layer. However much brighter the colors in the top layer are determines how bright the colors in the mid tone area will appear. The opposite can also be applied: the darker the colors in the top layer appear, the darker the mid tones in the bottom layer will appear. In contrast with multiplication mode, the overlapping function does not have such a darkening effect.

Hard Light: This mode performs a multiplication, or in some cases, a negative multiplication, of the colors (independent of the mix color). The effect resembles the effect of a spotlight shone directly on the image. If the mix color (light source) has a brightness level exceeding that of 50% of gray, the image will be brightened. If the mix color has a brightness level darker than that of 50% of gray, the image will be darkened (similar to the after-exposure effect).

Soft Light: Colors are either lightened or darkened depending on the mix color. The effects resembling the indirect illumination of the image with a spotlight. If the mix color (light source) has a brightness level exceeding that of 50% of gray, the image will be brightened. If the mix color has a

brightness level darker than that of 50% of gray, the image will be darkened (similar to the after-exposure effect). Mixing using pure white or black will not result in pure white or black, rather a relatively darker or lighter outcome.

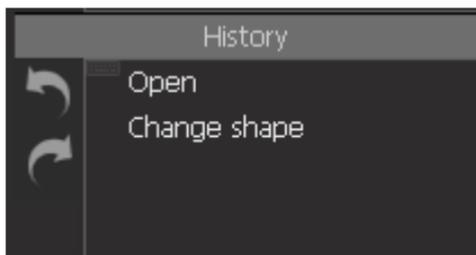
Difference: This mode subtracts the color (base or mix color) possessing the lowest brightness level with the color from that possessing the highest brightness level according to the color information present in each channel. In this case, mixing with white results in an inversion of the color values of the base color. Mixing with black yields no change.

7.2.9 Areas



In the Area window, you can save areas that you have selected with one of the selection tools and apply them again later. Click on the trash can icon to delete the selected area from the clipboard.

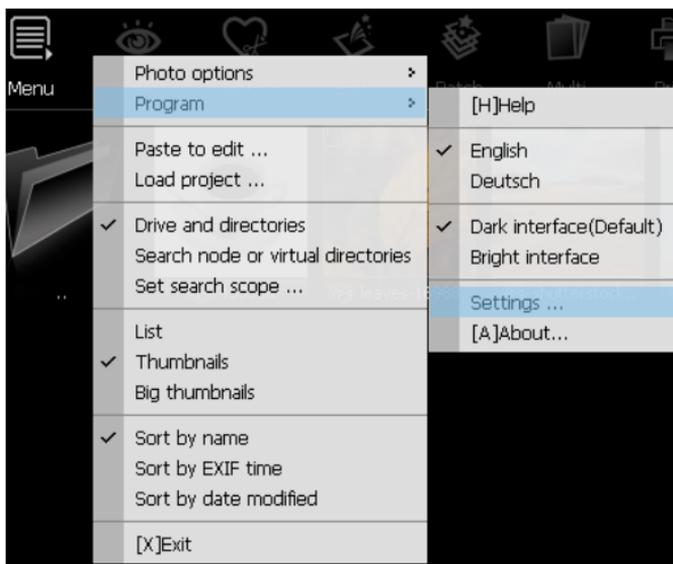
7.2.10 History



The project history displays all changes made to your project and allows you to go back to any previous stage of editing and redo or undo certain changes made during your work process. You can save your project history as a schematic file (.Idscm Format) and apply it to further projects at a later date.

8. Program Settings

Clicking the **Menu** icon in album mode or edit mode opens a drop-down menu with several options.



Clicking on **Program** will allow you to change the language settings. Selecting the **Settings** option under the program tab will open the program settings menu:

Here you can define some settings for **CutOut 10**. For example, the check mark in **Adjust Film Features** after opening a RAW file ensures that when you load an image in RAW format, this image is first opened in the menu for **Adjust Film Features** and not directly in edit mode. You can also choose between a light and a dark user interface.

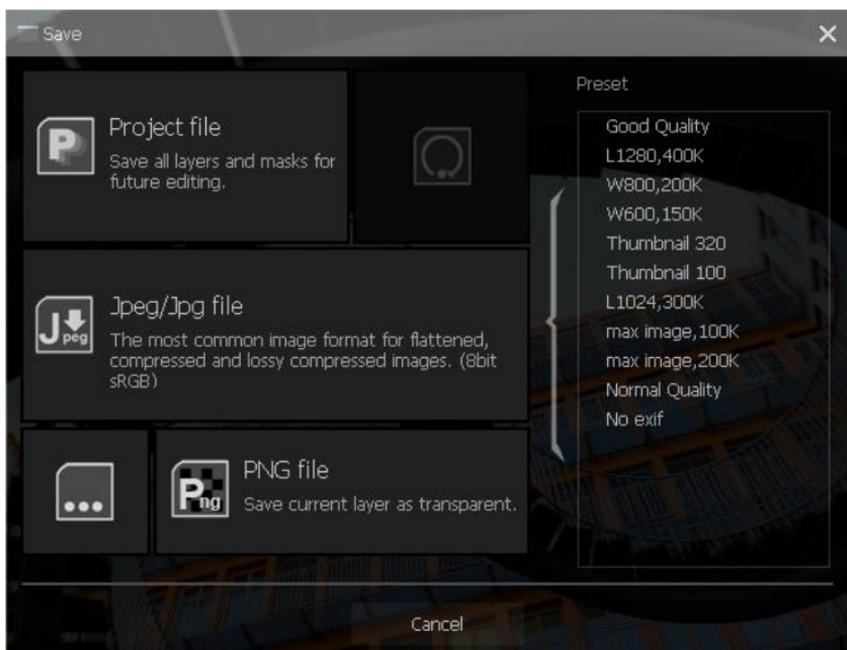


10. Opening and Saving Files

CutOut 10 supports:

- Opening of common image formats including: Jpeg, Gif, Tif, Tga, Pcx, Png, Bmp as well most camera RAW-Formats.
- Camera RAWs: *.raw, *.nef (Nikon), *.cr2 (Canon), *.crw (Canon), *.orf (Olympus), *.mrw (Minolta), *.raf (Fujifilm), *.pef (Pentax), *.dcr (Kodak), *.srf (Sony), *.erf, *.dng (Adobe), *.arw (Sony), *.rw2 (Lumix) ...

The program supports the output formats Jpg, Png, Tif, Bmp, and many more.





- **Quality**
The Jpeg compression quality.
- **Adjust File Size**
Enter a desired file size and the program will try to create a corresponding quality with the settings.

- **High Quality**
Use YUV 1:1:1 for Jpeg decoding.
- **Adaptive**
Use the adaptable quantum table for Jpeg decoding. This may reduce the file size.
- **Exif Data**
Choose whether you want to keep all, a few or no EXIF data in the file. EXIF data requires about 1-64K of the file size.
- **Compression Optimization**
The program will try to reduce the file size by optimization.
- **Maximum File Size**
Set the limit of the image size. If this limit is exceeded, the image is automatically reduced.
- **Method**
If the final file size exceeds the maximum file size, the program selects a method to reduce the file size. The method includes downscaling the image size or reducing the quality. The reduction process is automatic.

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